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December, 1915

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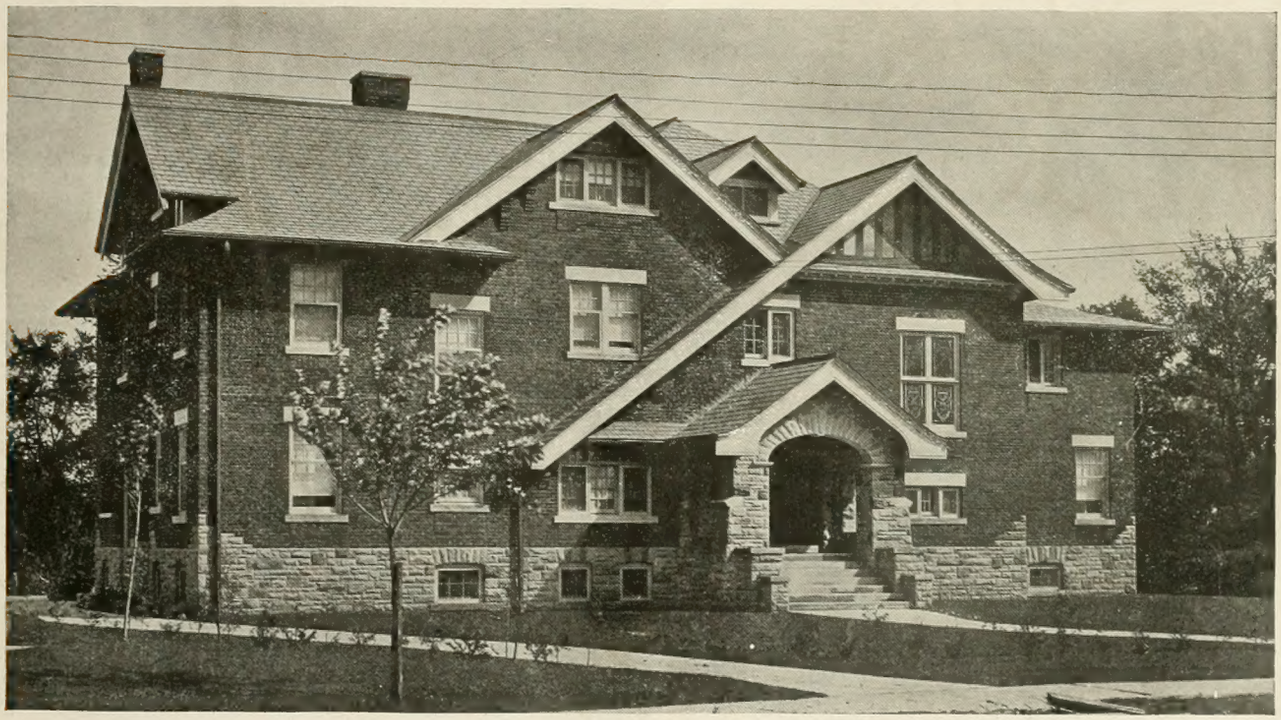
The Canadian Builder and Carpenter

C A Bradshaw
183 Davenport Rd
TORONTO ONT

Published Monthly by The Commercial Press, Limited, 32 Colborne St., Toronto

Who also publish: The Canadian Manufacturer, The Canadian Clay-Worker, Motoring, The Electrical Dealer and Contractor, Canadian Hardware Journal, Canadian Furniture World, The Retail Grocer and Provisioner, The Retail Druggist of Canada, and The Canadian Nurse.



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WE HAVE sixteen illustrations showing the plans, elevations and various rooms of the beautiful residence shown on this cover. The descriptive article will cover several pages and many hints will be given which may be incorporated in less costly houses. The electrical system is fully described showing how builders must provide for the growing use of electric current.

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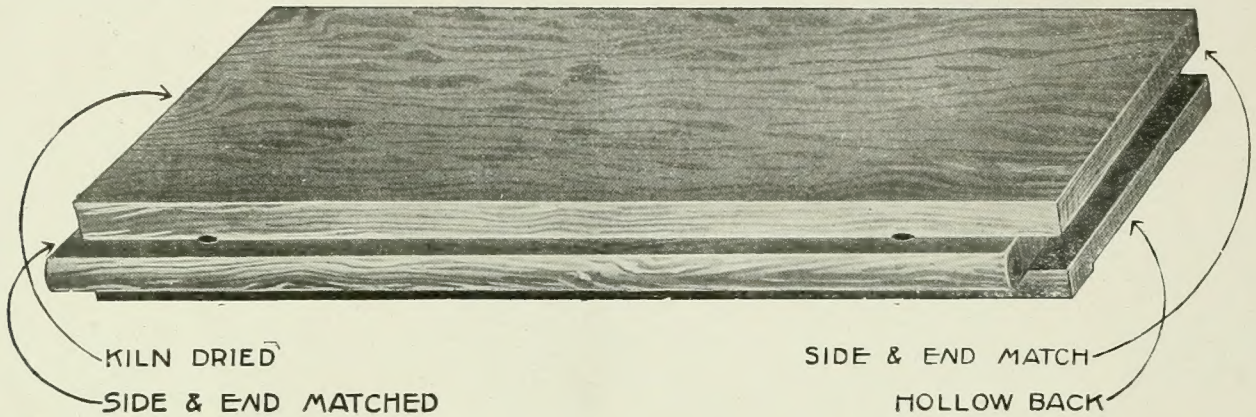

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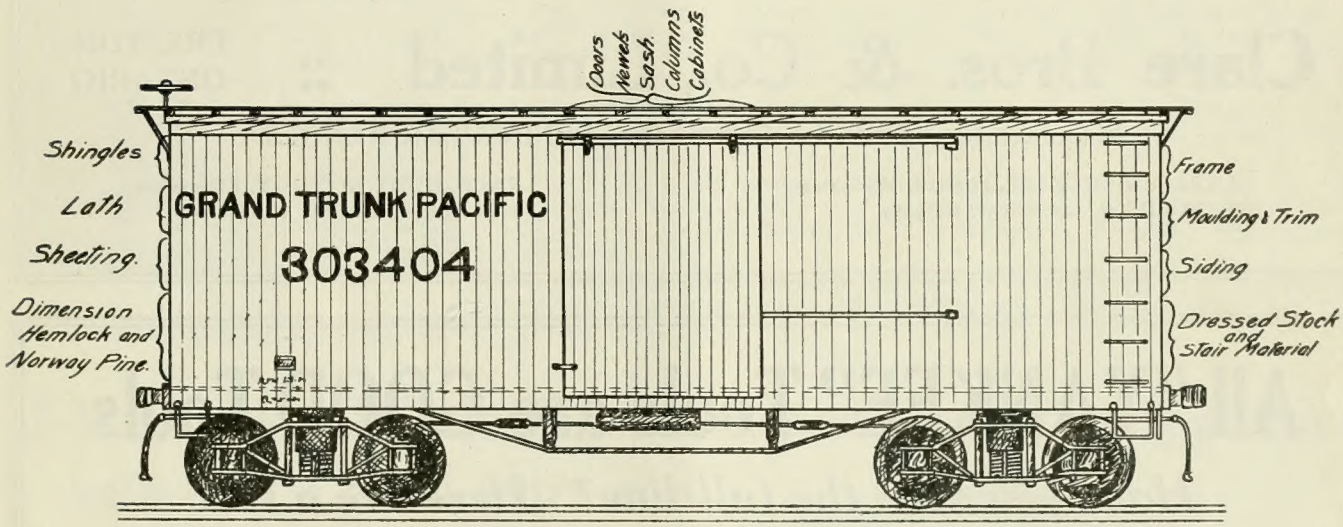

Send us your lists for quotations, F.O.B. your station. Or let us have our representative call without obligation to you. He is a practical man who may be able to give you some helpful suggestions.

Georgian Bay Shook Mills, Limited

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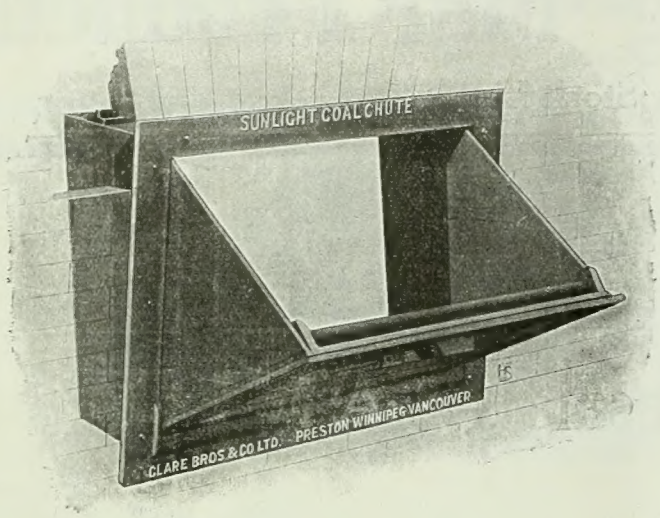
Midland, Ontario



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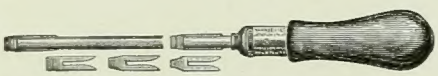

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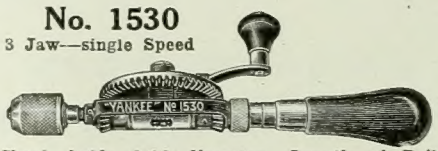
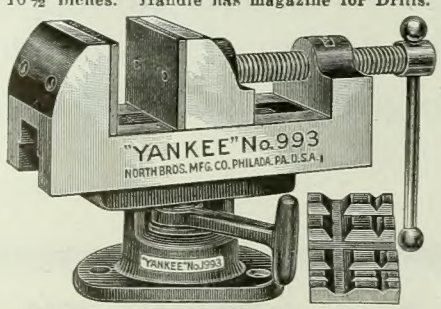
No. 1530
3 Jaw—single Speed



Chuck holds 3-16 diameter. Length of Drill 10½ inches. Handle has magazine for Drills.



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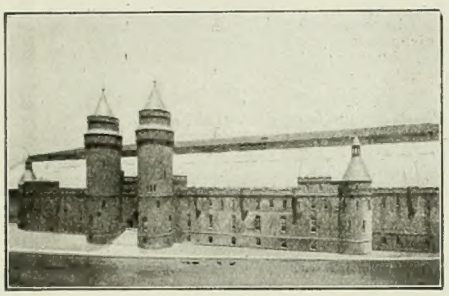
J-M Asbestos Roofings have been selected to cover the largest Armory in the world



Armory situated at Kingsbridge Road and Jerome Ave., N.Y. City. Architects, Pilcher & Tachau

The roof arches of the huge new armory of the Eighth New York Coast Artillery. have the greatest span of any arches in the world. Only one roof ever exceeded the span of this—a World's Fair Building, since destroyed. This armory building occupies 600 x 375 feet. Its cost, complete, will be $1,000,000.

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One layer of J-M Keystone—which can be applied at a single operation—will give far better results than several layers of the best sheathing paper. It quickly pays for itself in fuel saved and renders a dividend in economy and satisfaction.

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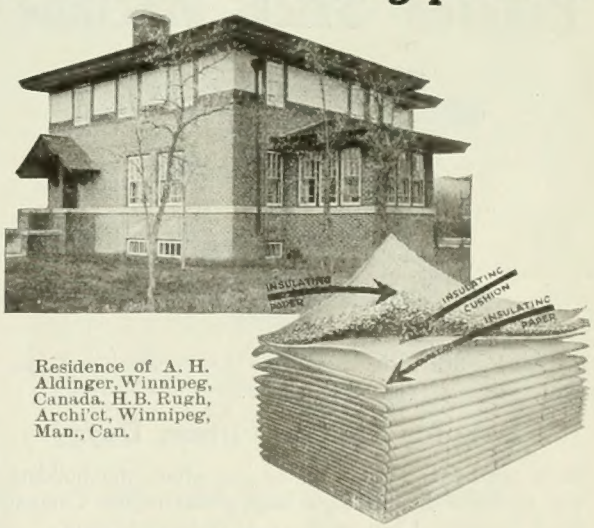

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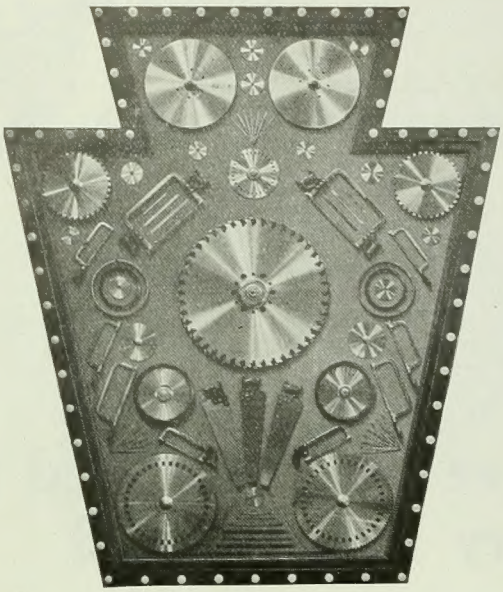

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Saws, Tools, Files

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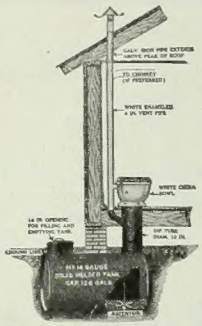

This letter from the Kaustine Contractor-Agent at Saginaw, Mich., is typical of what hundreds in your line are doing—and you can do the same with the

Kaustine
Chemical Closet

Mr. Pharis writes; "Am well satisfied with results thus far, as I have sold 45 systems since starting only six months ago, and have about 20 more sales about ready to close. I intend devoting all of my time to the work, in the future."

The built-in-the-house chemical closet has come to stay, for it gives the rural home, school, factory, church and hotel all the advantages of plumbing and city conveniences—with no plumbing bills or repairs.

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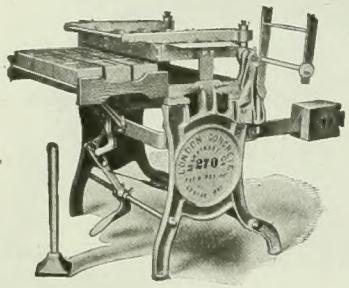
You're protected on the sale in your locality—and you get all the inquiries in your section, from our national advertising. We circularize your prospects, too. Any wonder that Kaustine agents make $100 to $350 monthly.

Originators and patentees of Kaustine System of Sewage Disposal and Underground Tank Chemical Closet.

Get our proposition—write to-day, right now

Kaustine Co. of Canada, Dept. 523C
612 C.P.R. Bldg., TORONTO
Also Buffalo, N.Y.

London Cement Pressed Brick Machine



Capacity 5,000 Brick per day. Every Brick has frog impression and polished on all sides.

Pays for Itself in Fifteen Days

Brick can be made right on the job where the building is to be erected. There are large profits in the Cement Block business. Only small capital required to start.

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World's Largest Manufacturers of Concrete Machinery and Cement Working Tools

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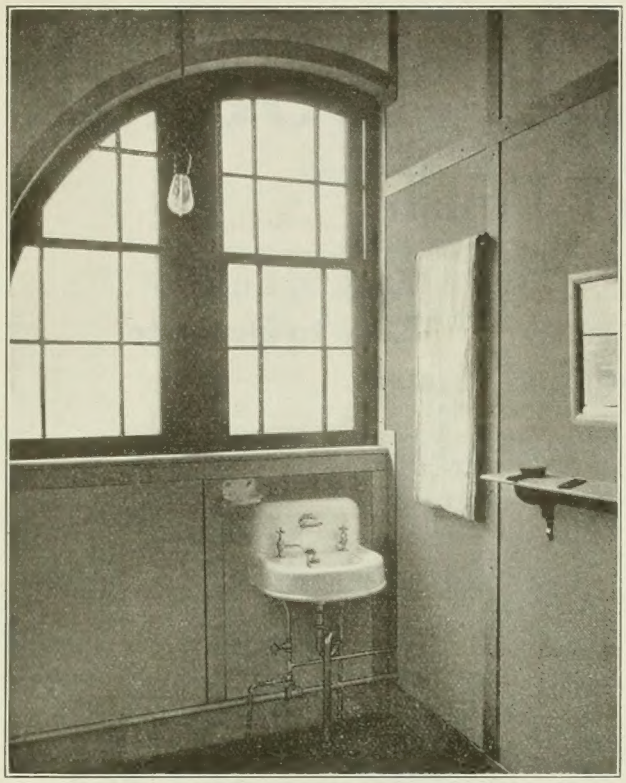


Bathroom lined with LINABESTOS

Finish Your Jobs Yourself With

LINABESTOS

"The Only Wallboard that is Fireproof"

What's the use of passing over the interior walls and ceilings of your new and alteration jobs to the plasterers, when you can finish them yourself in better and more permanent shape with LINABESTOS?

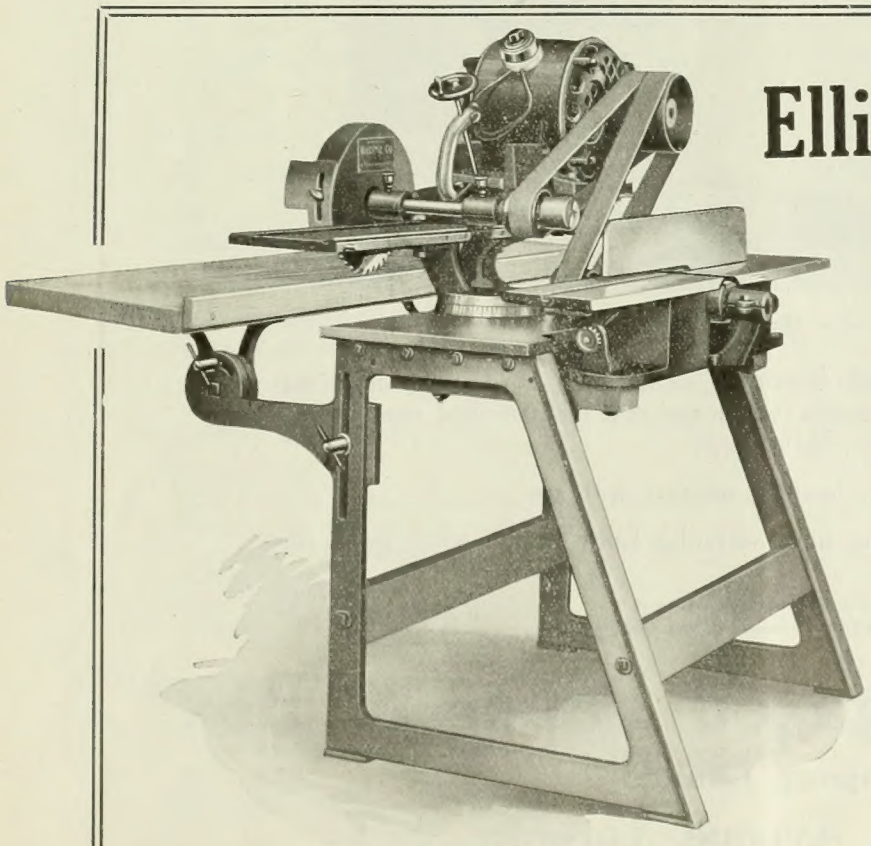
Applying LINABESTOS is the simplest kind of carpentering work. It goes very fast, saving days or weeks on a job, and you can quote most attractive prices on it. It is especially suitable for repair and alteration work, where the dirt, dampness and delay of plastering are so objectionable. Besides, it is absolutely fireproof, and a valuable safeguard against the spread of fire inside a house.

Investigate LINABESTOS—it will help you to get repair and alteration as well as new work—to do it quickly, profitably and well—and so to get more. Write us for Booklet 5, samples and full particulars.

Asbestos Manufacturing Co., Limited

Drummond Bldg., Montreal

Factory at Lachine, P.Q. (near Montreal)



Patented 1910 — 1914

The No. 3

Elliot Woodworker

has many outstanding features that will appeal to the progressive Builder. **The Elliot Woodworker** is portable and can be taken right to the job and will save 20% to 30% on labor and material.

As a shop machine, it is the best and most economical you can buy. Takes up but little room, runs on any house lighting current, and will cut 3-inch joists, house out a pair of stair strings 16 feet long in 35 minutes,, and all other dadoing, grooving, etc., required.

Supplied with or without Jointer Attachment.

46 sold in one city alone this year

Better investigate now. Illustrated circular, prices and terms sent on request.

THE

Elliot Woodworker Limited

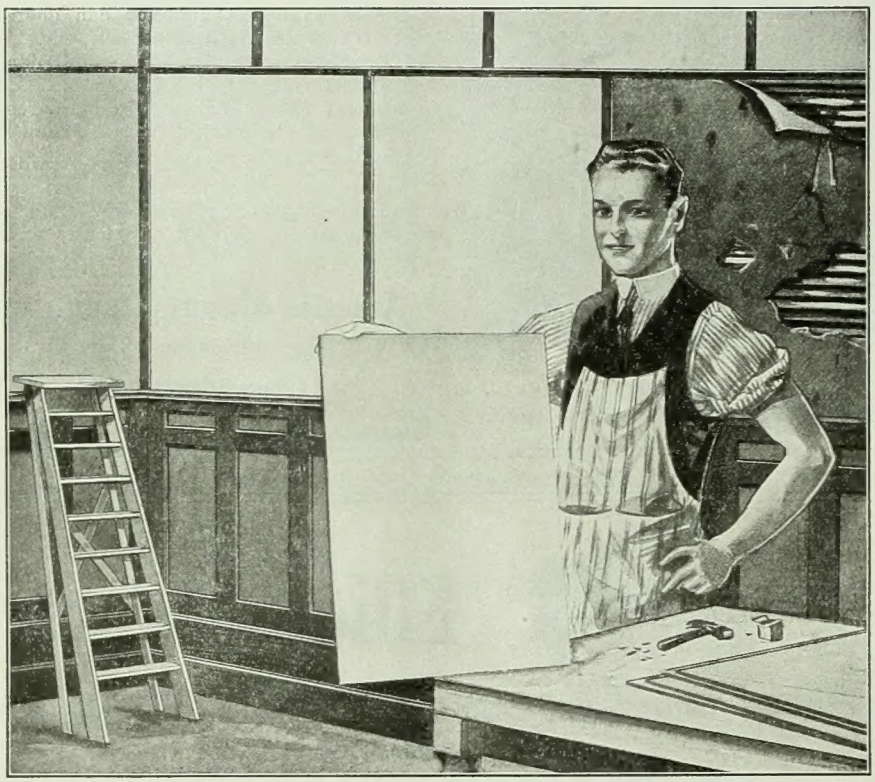
480 Bathurst St., Toronto, Ont.

Martin Wall Board

For Interior Finish

Absolutely Sanitary **Easy to Put Up**
Fire Resisting **Easy to Decorate**
Cheaper than Lath and Plaster

Made in Canada



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Making an Old Room New

The new Martin Wall Board is made from pure, clean wood fibre by accurate machinery specially designed for the process, which makes it such an ideal interior finish for walls and ceilings in any building, old or new.

Special hardening process causes the board to improve with age.

The Board is finished smooth on one side and burlap finish on the other, giving the user a choice.

If you are not already using it write us for a sample of the board

Martin Corrugated Paper & Box

Company, Limited

353 Pape Avenue, Toronto

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Advertising rates on application.

VOL. 5 TORONTO, DECEMBER, 1915 No. 12

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Business is booming!

Toronto, Ont.

Merchants everywhere tell our 800 salesmen that business is booming.

Farmers have had a record crop, at big prices, with big demand at home and abroad.

Stocks of manufactured material are short, and labor is in great demand.
Exports largely exceed imports.
Factories are busy, a great many working overtime.

More freight cars are needed, and steamers are taxed to capacity.

Canada has, in proportion to population, greater exportable surplus of wheat this year than any other country in the world.

Millions of dollars are passing over the merchants' counters.

The people who spend this money want the best service.

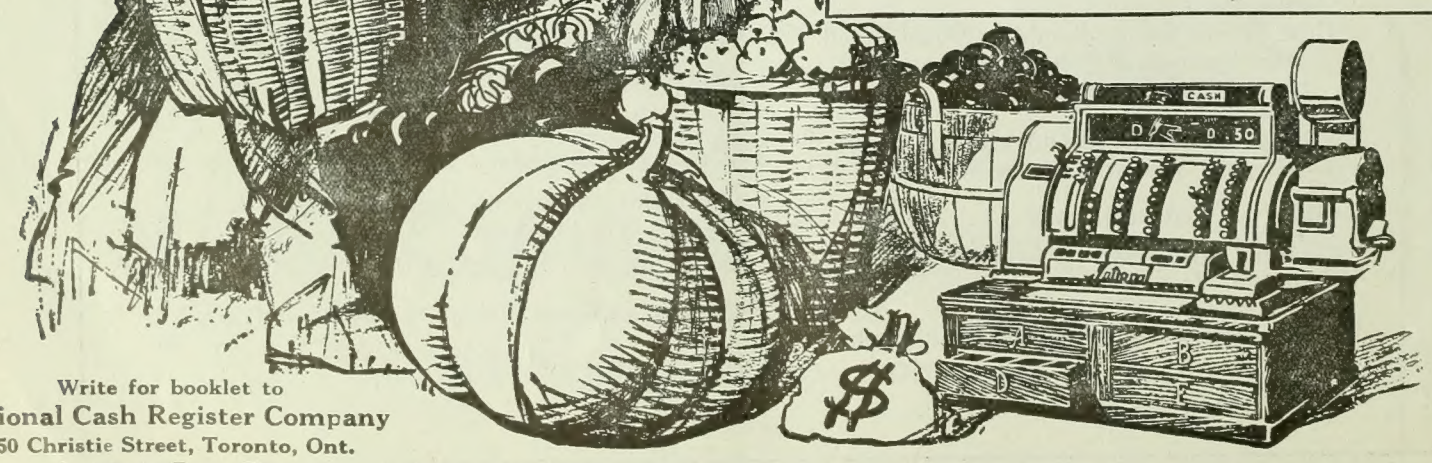
They demand it in all kinds of stores, from the smallest to the largest.

They get it in stores which use our up-to-date Cash Registers, which quicken service, stop mistakes, satisfy customers, and increase profits.

Over a million merchants have proved our Cash Registers to be a business necessity.

Last month the N.C.R. in Canada had the largest sales of any month in the past seventeen.

President of the
National Cash Register Co. [Signed] John H. Patterson



Write for booklet to
National Cash Register Company
350 Christie Street, Toronto, Ont.
Agents in Every City

Modern Farm House at Hastings, Ont., Erected for $3,000

Complete plans and elevations at 1-6 in. to the foot are here given of an up-to-date farm house. Complete bill of materials for this house is also given

By ALFRED A. GILMORE, Architect, Preston, Ont.

THE accompanying drawings and lists of materials were used to build a farm house at Hastings, Ontario, last year, and have proved to be satisfactory and to furnish a comfortable home for a farmer or, for that matter, for anyone.

The cost of this home was almost $3,000, but the owner did the excavating and furnished the gravel and sand for the foundation and hauling of all materials.

I am of the opinion that we should all try and show all the plans we can for farm houses, as the country builders are called upon to be the architect as well as the builder. Then it is also necessary to give lists of the materials so he can easily purchase the different goods without lengthy calculation. This class of house may not appeal to the city or town owner, but the farmer has just as good a right as anyone to a good convenient home, and just at present he is the very man who has the money to pay for a good building.

Generally speaking, the ordinary stock plan one sees in books and magazines is not worth a "hoot" to the man who is called to build a farm house. Now, there are a good many thousand of these same country builders, and altogether they must erect several thousands of buildings each year. Let us help them all we can. Possibly many of them know more than we do about it, but the beginners are up against it and they will reap some benefit.

Bill of Materials for $3,000 Farm House

11 pcs. 2 x 8″ x 12′ sills.
11 pcs. 1 x 8″ x 12′ sills.
22 pcs. 2 x 8″ x 13′ joists for first floor.
18 pcs. 2 x 8″ x 18′ joists for first floor.
4 pcs. 2 x 8″ x 9′ joists for first floor.
100 pcs. 2 x 4″ x 18′ wall studs set on 16″ centres.
81 pcs. 2 x 4″ x 9 studs on first floor.
18 pcs. 2x 4″ x 12′ sills and plates for partitions.
22 pcs. 2 x 8″ x 14′ joists on second floor.
22 pcs. 2 x 8″ x 18′ same thing.
106 pcs. 2 x 4″ x 8′ studs for upstair partitions.
20 pcs. 2 x 4″ x 12′ sills and plates for same.
22 pcs. 2x 6″ x 13′ attic joists.
22 pcs. 2 x 6″ x 18′ attic joists.
4 pcs. 2 x 8″ x 14′ hip rafters.
8 pcs. 2x 6″ x 20′ jack rafters.
8 pcs. 2 x 6″ x 18′ jack rafters.
8 pcs. 2 x 6″ x 18′ jack rafters.
8 pcs. 2 x 6″ x 16′ jack rafters.
8 pcs. 2 x 6″ x 14′ jack rafters.
8 pcs. 2 x 6″ x 12′ jack rafters.
24 pcs. 2 x 4″ x 10′ jack rafters.
30 pcs. 2 x 4″ x 12′ double studs at doors and windows.
12 pcs. 2 x 8″ x 12′ rough carriages for stairs.
16 pcs. 2 x 8″ x 14′ verandah sill and joists.
1 pc. 2 x 8″ x 14′ dressed plate for verandah.
2 pcs. 2 x 8″ x 16′ dressed plate for verandah.
15 pcs. 2 x 4″ x 8′ verandah beams (ceiling).
20 pcs. 2 x 4″ x 10′ rafters for verandah.
5357 sq. ft. matched ⅞″ (lumber for covering outside and inside, 1 ply).
2880 sq. ft. under flooring for all three storeys.
2200 sq. ft. roofing house and verandahs.
1240 sq. ft. sheathing walls and ceiling of kitchen, dining room, bath and pantry
8640 laths.
60 lbs. lath nails.
60 bush. lime.
36 lbs. hair.
6 loads sand.
2 bbls. plaster paris.
18 squares steel siding and ceiling for kitchen, pantry, dining and bath rooms.
2400 ft matched ⅞ flooring for two flats
18 squares galv. steel roofing.
5400 sq. ft. clapboards.
20 rolls building paper.
500 lbs. 3″ nails; 100 lbs. 4″ and 40 lbs. 5″.
Material for concrete wall 12″ thick and 7′ high and footing course under it 6″ x 18″ will be:
29 bbls. Canadian Portland cement.
13 yds. sand, 22 yds. broken stone, mixed 1:3:5.

Mill Work

250 lineal ft. base downstairs.
280 lineal ft. base upstairs.
Quarter round at floor and moulding for top of this base.
46 lineal ft porch bottom rail.
120 balusters 1, ⅛″ x 1, ⅛″ x 24″ long.
5 porch columns square 8′ long
330 sq. ft verandah floor.
330 sq. ft. verandah ceiling.
Doors can be taken from drawings.
Windows can also be counted on plans.
Stairs will best be estimated by mill man from information given by owner as to quality of wood, etc., but numbers of risers and treads can be found on drawings.
Picture mould can be estimated for any rooms it will be used in.
Casings can be estimated from drawings by counting door windows.
Chimneys 6 M bricks.

See six following pages for plans and elevations of this house.

Decoration of Wall Board

In planning the decorative treatment for a dwelling lined with wall board an important factor, besides rugs, carpets, draperies and furniture, must be borne in mind, and that is the panel arrangements. For instance, if a certain room has a frieze, or a dado, provisions must be made for harmoniously coloring that portion of the wall.

Like paneling, color apparently influences the proportions of a room. Red makes a room appear smaller, while tan, gray, blue, pink and yellow have a tendency of adding space. Some colors, such as green and brown have very little effect in this way, and consequently used very extensively.

Then, too, a sunny room facing the south should have a different treatment from that of a room with subdued light from the north. In the former, reds and blues are desirable, and in the latter, brown, yellow and some greens may be used to good advantage.

Simplicity should be the keynote of all wall board interiors. When planning the decoration for a single room for individuality and appropriateness, remember that the effect throughout the different rooms should be in harmony and balanced.

Sizing Wall Board

There are two distinct classes of wall board, one is unsized and the other sized. In view of the fact that, at least nine-tenths of all wall board sold is sized, the remainder of this treatise will consider it alone; for, after the other board has received a coat of size it is susceptible to the same processes of painting as the sized board. This size may be glue, shellac or a cheap varnish diluted with turpentine to the consistency of water. Varnish is perhaps the best, being more economical than shellac and possessing moisture-proof qualities which are lacking in glue.

Only first-class paint should be used on wall board, although it makes no difference whether it be prepared or hand-made. Flat or egg-shell gloss oil paint is, without question, used more than any other kind; although glazing, or, as it is frequently called, Tiffany glazing, is rapidly gaining favor. Stain should be avoided as it is difficult to spread evenly.

Before applying any kind of paint to see to it that the brads in the centre of the panels are countersunk very, very slightly below the surface of the board and stopped with putty or what is known as nail-head filler. The ingredients of the filler are about three parts of plaster of paris and one of dextrine of glue, both of which can be supplied by paint dealers. Mix well and when ready for use add enough water until a paste, having the consistency of putty, results. Do not apply shellac or knotting over this filler. No moulding, decorative strips or trim must be put on until after the decoration is completed.

Two coats of flat, or glossy, oil paint generally give

Fig. 1.—Front elevation of house described in this issue. See page 11 for bill of quantities. Scale is ⅛ in. to 1 ft.

a satisfactory finish, while only one coat of the dark shades is sufficient.

How to Do Tiffany Glazing

The common term for blending, glazing, mottling and wiping is Tiffany glazing. They all refer to the method of spreading transparent colors over a body of flat oil paint, which produces very beautiful decorative effects. The general public, indeed the every day painter, as a rule, labor under the impression that this treatment is intricate and difficult. As a matter of fact, though, it is as simple as staining. However, a little experimentation and practice are advisable before an important job is attempted.

lathering preparatory to shaving. Of course there is a knack to this but it is quickly learned. A little hint, do not try to make the edges of one application of glazing liquid straight, instead, it is better to have it ragged so that the following application will blend or gradate into the first without showing a division line.

The foregoing method of using glazing liquid into which is mixed one or a combination of colors is really glazing. It may be stippled but that would not materially change it. Stippling is the act of working over a wet painted surface with a large, flat, stiff, bristle brush known as a stippler, to eliminate brush marks and produce a dotted, or "toothed" surface.

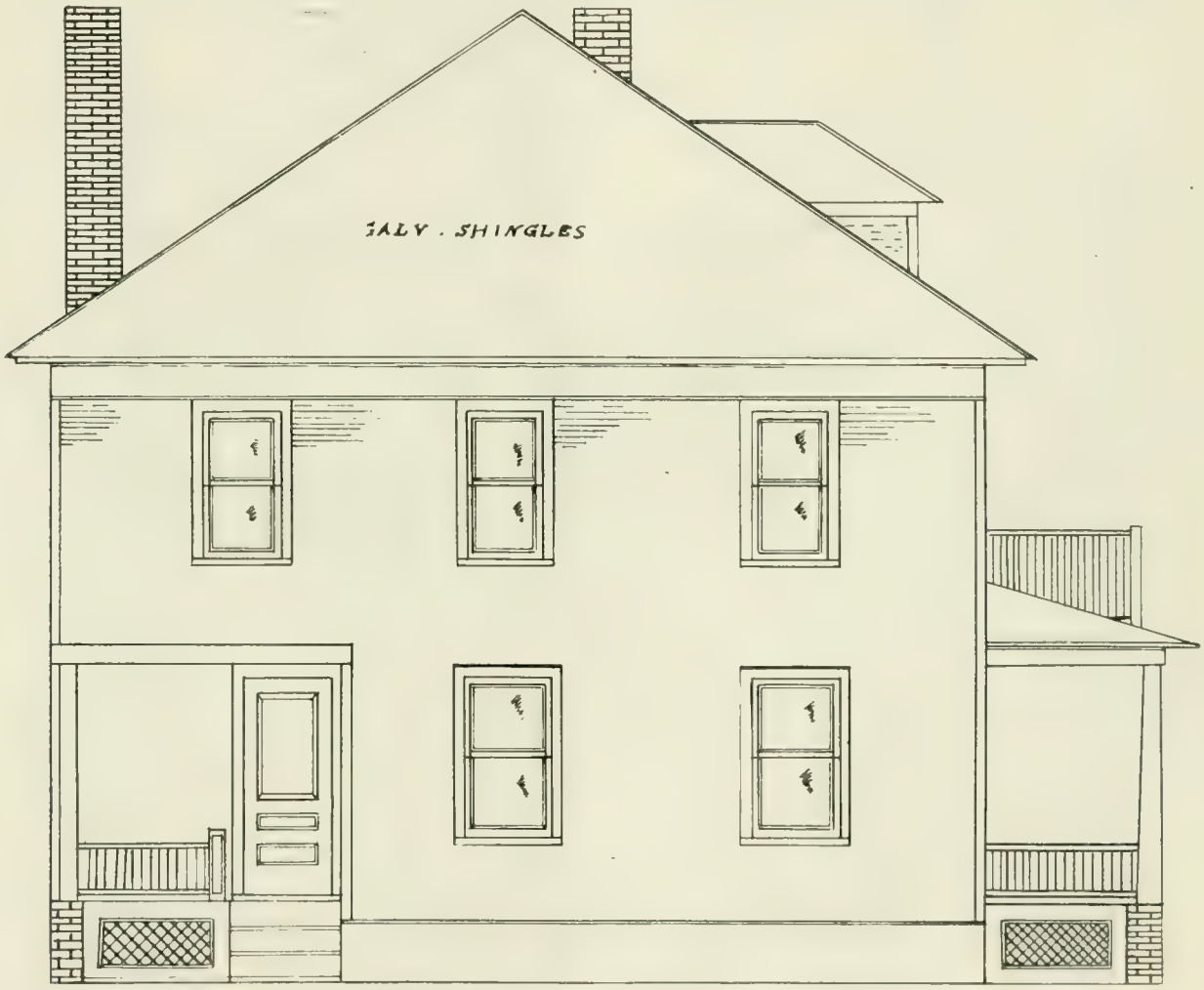


Fig. 2.—Side elevation of house. Scale is ⅛ in. to 1 ft.

A perfect body or ground to work over is the first requisite. Different tints are used for this purpose to secure various effects, although some decorators employ only cream and ivory. It must be flat in every instance, however, and allowed at least thirty-six hours to dry before the glazing liquid, into which pure artist's colors are dissolved, is put on. Try out the mixture on waste pieces of board until the proper tone is obtained by adding colors or glazing liquid, as may be required. Apply to the wall with a three or four-inch brush. Cover a space of about seven or eight feet and use no particular pains to eliminate brush marks. Just spread the liquid over the wall and work the brush up, down and every way. Crumple a piece of cheese cloth in the hand and go lightly over the surface with a similar motion to that of the barber in

Blending or mottling is almost identical, the exception being that various colors are mixed in separate containers of glazing liquid and applied to the wall in blotches and blended together bringing about a mottled effect.

Glazing liquid is made of three parts of linseed oil and one of turpentine with a small quantity of driers. It is also procurable from paint dealers.

Manufacturers of wall board do not recommend the use of wall paper for the reason that it invariably cracks at the panel joints, in spite of strips of canvas or adhesive paper tape being first put over them. Of course, it is sometimes almost necessary to do this, as when a partition is installed at one end of a room which is plastered and papered. The thing to do then is to apply the wall board panels in some symmetrical

arrangement, paste the wall paper over it and place decorative strips where the joints of the panels come. In order to have the entire room similarly finished the plastered and papered walls should be paneled off with decorative strips to match the wall board partition.

Burlap and leather can be effectively used over wall board. They are applied in the same manner as to other materials. Leather, on account of its nature is always paneled, but this is unnecessary with burlap. Both make rich looking wainscots or dados, for which they are commonly resorted to.

Stenciled Ornamentation

The beauty of any decorated wall board room can be greatly accentuated through the use of an appropriate stencil applied in one or more tints. They may be had from practically all paint makers and from several of the better known wall board concerns. Or, they can be original designs. Illustrated stencil catalogues are free and are a handy addition to the painter's library.

After a stencil has been fastened in place with thumbtacks, apply the color with a fairly stiff brush. Do not rub or wipe, simply tap on with the end of the brush.

Best Finish for Moulding Strips

With regard to the decorative strips and mouldings used in connection with wall board in addition to the ordinary trim, they should be finished to either harmonize or contrast with the decoration on the walls. Unless one is familiar with what contrasts are good, extreme contrasts should be avoided. By painting the walls in medium tones of soft green, brown, yellow, gray or blue and the woodwork in white, cream or ivory, excellent effects are obtained. Medium shades of brown, gray or green painted woodwork and respectively soft brown, gray and green walls several degrees lighter than the woodwork are other artistic treatments. There is also the scheme of having the woodwork the same color as the walls, so as to create a subdued panel effect that is rather interesting.

The foregoing are merely variations from the only too common practice of staining and varnishing. It

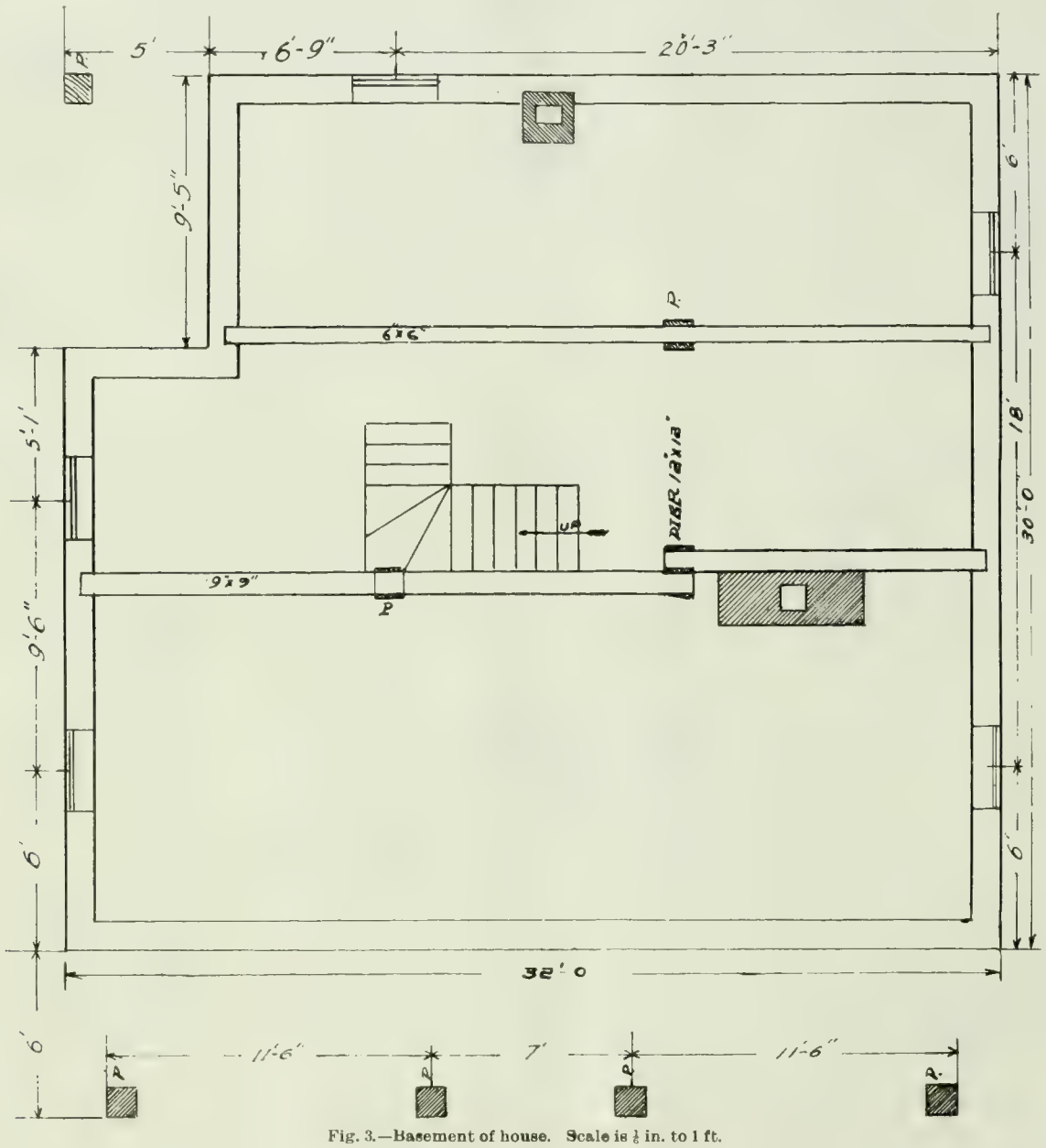


Fig. 3.—Basement of house. Scale is ⅛ in. to 1 ft.

should not be understood, though, that a fine finish of this character on a good grade of wood, bringing out all its natural markings and attractiveness, is not desirable. But where economy necessitates cheap woodwork, painting is to be preferred. As an exception, cheap woodwork may be stained mission for that does not make the grain and imperfections unduly prominent.

As for wall board tile, which is ordinary board with a tiled effect impressed upon its surface, it is nearly always enameled to better imitate the genuine article. First, two or three coats of primer (not size) are put on. Common flat white paint is satisfactory. Then, at least two applications of good enamel are given it. A rubbed finish is possible, if desired.

Natural Grained Wall Board

There are now numerous grained wall boards on the market that are finding a ready sale. They may be had in imitation pine, oak, walnut and mahogany; but practically any wood can be duplicated, provided there is a big enough demand. To finish, all that is necessary is a coat of shellac and one of varnish. A widely-advertised brand of prepared wax is also used to very good satisfaction. It is applied directly to the board.

In conclusion, the decoration of wall board is limited only by the ability and skill of the decorator. There is hardly a form of decoration to which it is not susceptible. Even dry fresco painting, marbeling and, if factory grained board is desirable, hand graining can be executed upon its fine surface.—J. A. Poesl, in American Carpenter and Builder.

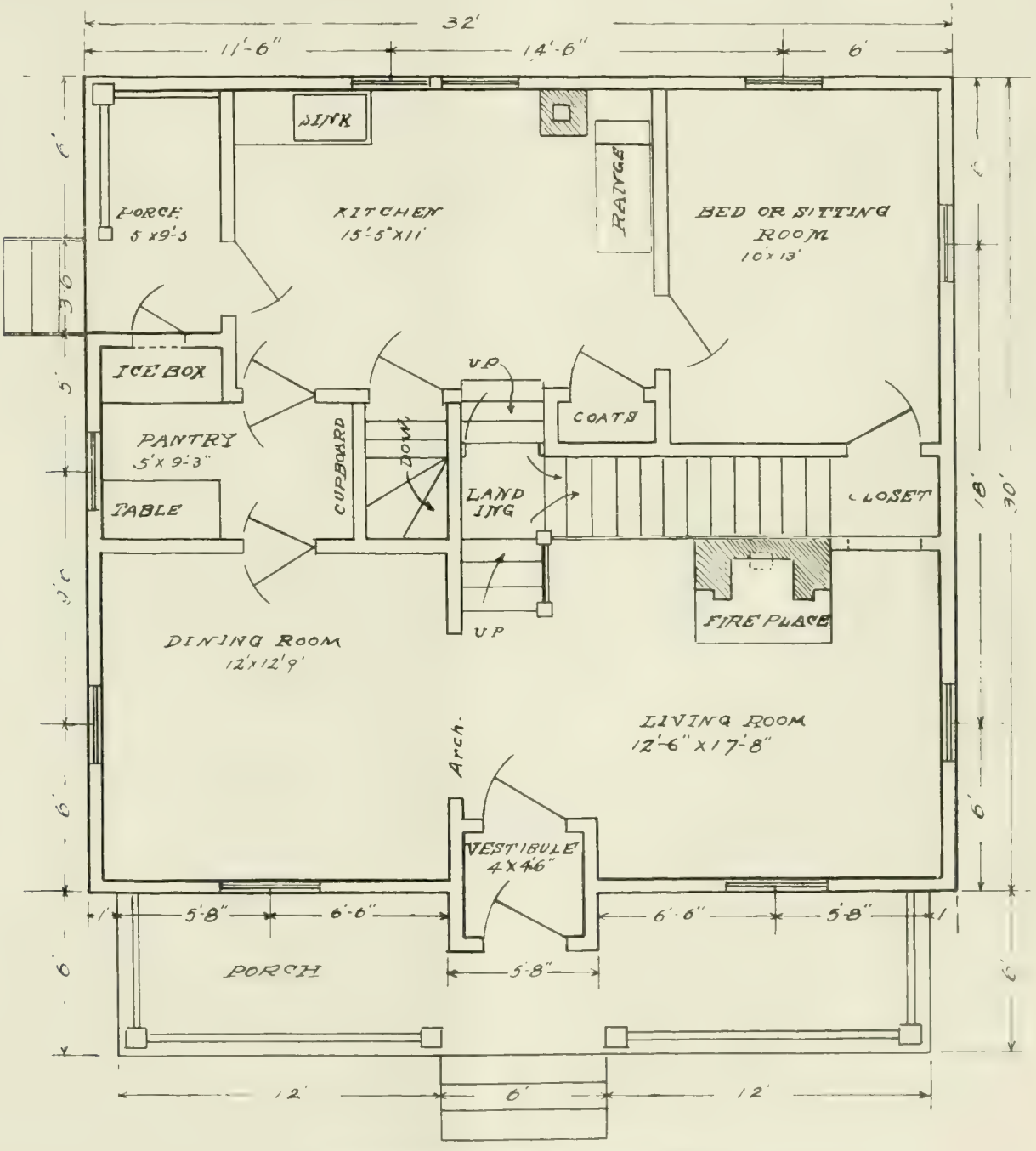


Fig. 4. Ground floor of house. Scale is ¼ in. to 1 ft.

The right interpretation of workman is, diligence to the work and accent on the man.

Floor Surfaces in Fireproof Buildings

In discussing floor surfaces in fireproof buildings, in a paper read before the American Society of Mechanical Engineers, Sanford E. Thompson states that the selection of the type of floor is dependent on the character of the structure, the nature of the wear, and the architectural appearance. Every building must be considered by itself. Suggestions for the type of surface to select are covered in the following paragraphs:

As a preliminary guide, the material suitable for different conditions may be given as:

Basements: Granolithic finish with troweled surface made with approved materials and workmanship.

Offices: Hardwood, linoleum on concrete, magnesium composition.

Corridors and halls for institutions and office buildings: Terrazzo, granolithic finish with ground surface.

Entrance pavilions: Terrazzo, mosaic, tile, natural stone.

Class rooms, lecture rooms and drawing rooms: Linoleum on concrete, granolithic with ground surface, hardwood, magnesium composition.

Laboratories: Granolithic with troweled surface, magnesium composition, tile, hardwood.

Lavatories: Terrazzo, granolithic finish with ground surface, tile.

The above selections are given in the order in which

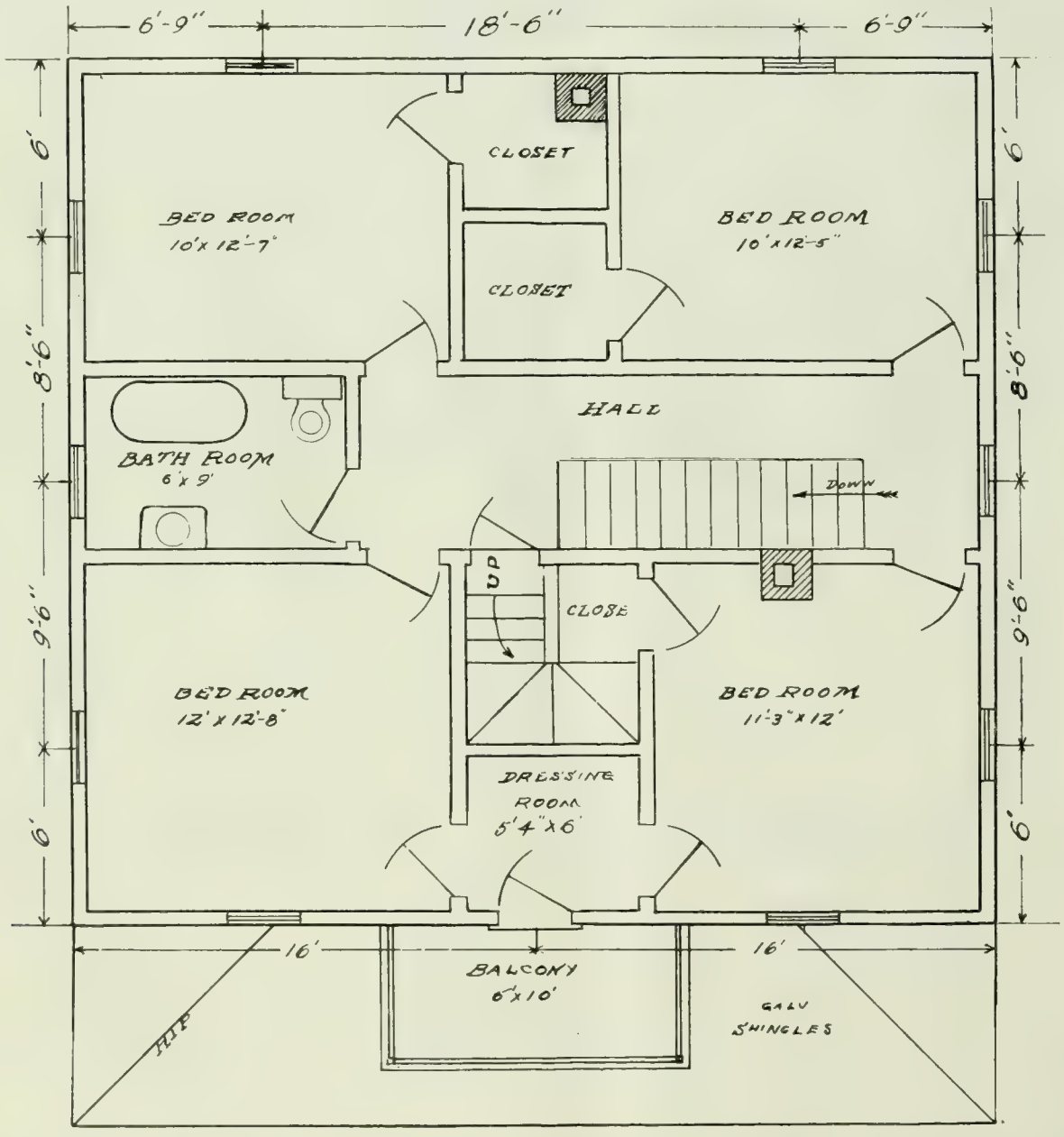


Fig. 5.—Bedroom floor of house. Scale is $\frac{1}{8}$ in. to ft.

Factory floors: Granolithic finish with troweled surface, hardwood.

Machine shops: Granolithic finish with troweled surface, hardwood on substantial base.

Ground floors for heavy manufacturing: Wood block, granolithic.

Warehouses: Granolithic with troweled surface, asphalt composition, hardwood.

choice might be made for the average building or room of each class.

Hardwood Floors in Fireproof Buildings

He also pointed out the kinds of hardwood floors best adapted for the purpose and also the method of laying them.

Floors of maple, birch, beech, oak, or long leafed

Southern pine are used most largely for offices, class rooms, or lecture rooms, and in many of the older colleges for laboratories and halls. A wood surface, however, is not usually considered entirely satisfactory either in general appearance or in wearing qualities. If one passes from a corridor with a granolithic, terrazzo, or tile floor, into a room or auditorium having a wood floor, there is a marked effect of inferiority and cheapness.

There is just as much danger of poor materials and workmanship with wood as with other kinds of floors. Unless the greatest care is taken in selection of materials and workmanship, they are liable to shrink or swell and sometimes to squeak under foot. If at all hollow underneath, they are more noisy than a concrete surface.

For corridors, wood is being largely superseded by granolithic, terrazzo, or tile. For laboratories other materials are being substituted for wood in most of the newer structures, although wood is occasionally preferred, especially for physical laboratories and for laboratories where men stand for long periods. The linoleum on concrete will overcome practically all the objections that are made to wood floors, with a cost substantially the same.

There are various methods of laying hardwood floors. For classrooms a single thickness of maple or birch nailed to sleepers with cinder concrete between should be satisfactory. Another type of construction is to use patented screeds embedded in the base concrete, and nail the floor boards to splines in the screeds. For rooms subjected to heavy traffic, 2-in. or 2½-in. plank may be placed underneath the hardwood floor.

Of all the different materials, oak is the most expensive and the finest in appearance at the beginning, but under heavy traffic is more liable to splinter than the finer grained woods. Georgia pine, if of best quality, makes a durable floor, and is preferable to the finer grained woods in wet places, as it does not swell and warp so badly. It is less durable, however, and therefore not recommended for the greatest permanence in rooms such as class and lecture rooms. Maple, birch, and beech all make good floor material. These are usually laid in strips ⅞ in. thick and 2¼ in. wide.

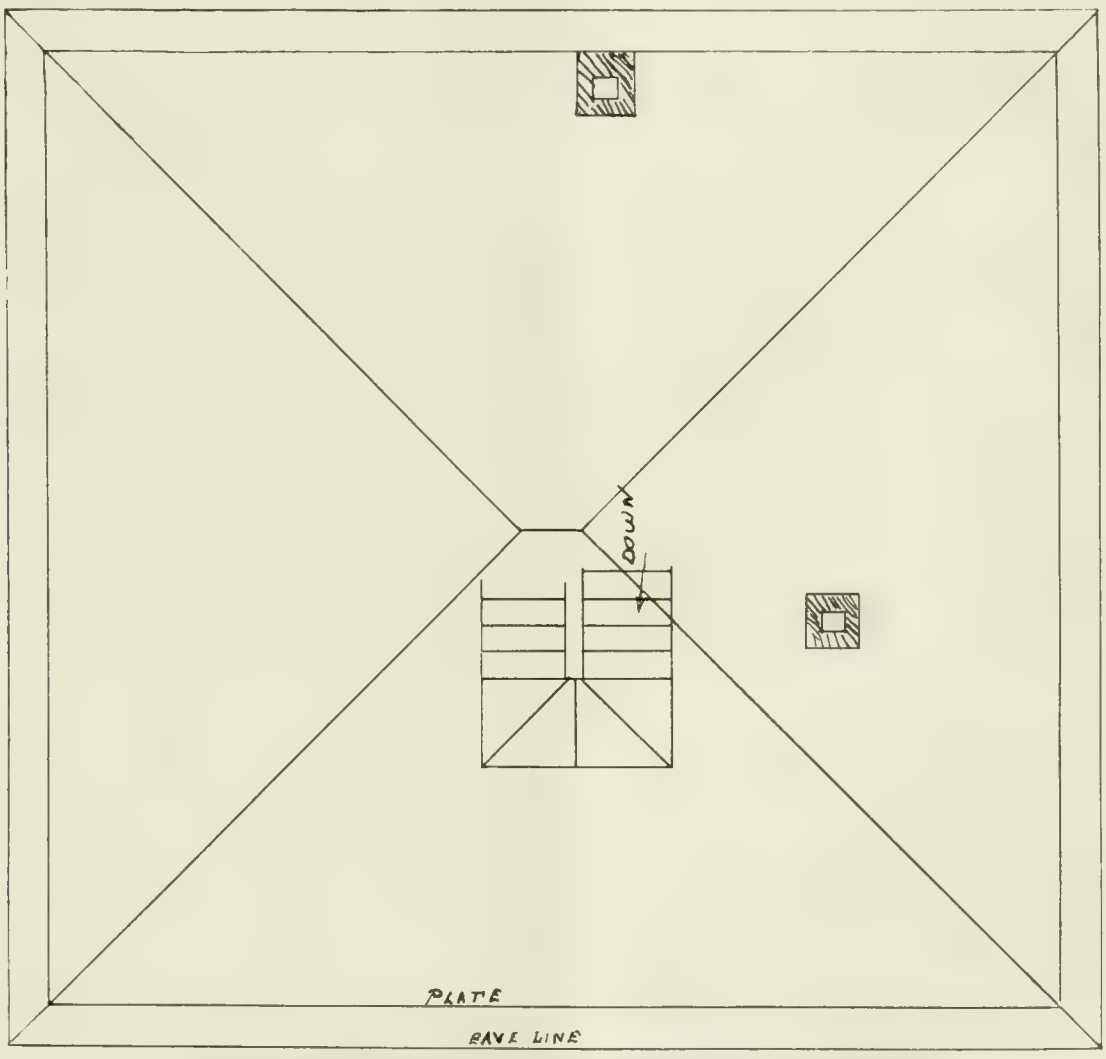


Fig. 6.—Roof lines of house. Scale is ¼ in. to 1 ft. See page 11 for bill of materials.

It Depends

Visitor—What's the new building on the hill yonder?

Farmer—Well, if I find a tenant for it it's a bungalow; if I don't, it's a barn.

It may seem harder, but it is really easier as well as better, to acknowledge a mistake than to quiet an active conscience.

Trade Statistics Herald Advent of Better Business

Statistics regarding bank clearings, commercial loans and deposits, railway earnings and trade balance all corroborate each other in evidence of advent of better business conditions

By W. L. EDMONDS

THERE is an old saying to the effect that while figures may not lie statisticians sometimes do. When statistics corroborate each other it can be taken for granted that the evidence they give is in accordance with the facts.

As all the statistics relating to the trade and commerce of the country have, during the last few weeks, been corroborating each other in regard to the advent of better business conditions, we can, without hesitation, accept them as reflecting the truth.

Large Increase in Bank Clearings

Among the statistics of different kinds appertaining to trade conditions, the most reliable are those relating to bank clearings, being as they are a record of the actual business that is passing through the banks.

For several weeks these clearings have been showing a steady improvement until to-day they are now uniformly larger than they were for the corresponding periods of 1914.

The clearings for October were $785,814,000, compared with $575,382,000 in September and $712,723,000 in October, 1914. Not since January, 1913, have they been as large. The increase was 36 per cent. over September and 10.2 per cent. over October, 1914. November has started off so auspiciously that it promises to do even better than October, as far as comparison with the corresponding month of the previous year is concerned, the total clearings in Canada for the first week being $217,956,058, or 29 per cent. in excess of the corresponding period in 1914.

Commercial Loans and Deposits

Although commercial loans, according to the latest returns, in Canada, are not back to where they were in the corresponding month of 1914, by about 6½ p.c.; yet they are increasing, being for September 1.7 per cent. above those of the preceding month, and larger than at any time this year since February.

That this is another indication of the general increase that is taking place in business is self-evident. An increase of a little over 6½ per cent. in circulation is another favorable indication.

The strength of the banks and their ability to finance the business of the country is revealed by the ratio of assets to liabilities and by the deposits. The ratio of assets to liabilities is 31.12 per cent., which is a record, while the deposits are $1,052,655,131, still another record. Compared with a year ago, these deposits show an increase of nearly $46,000,000.

While rates in the money market for long term loans may be high on account of the war, yet it is quite evident, from the unprecedentedly large sums of money which the banks have on deposit, that money for ordinary business purposes will be plentiful at moderate rates of interest.

Striking Increase in Railway Earnings

Railroad earnings are on the whole equally gratifying. For some weeks these, too, have been increasing. Every week in October showed increases in the earning of the Canadian Pacific, the Grand Trunk, and the Canadian Northern. In the first-named the increase, compared with the corresponding period of 1914, showed an increase of 28 per cent. during the first week of the month, and 66 per cent. in the last week. In the Grand Trunk the increase was 1.08 and 8.5 per cent. respectively, and in the Canadian Northern 17.9 and 79.8 per cent. Complete returns for the Grand Trunk Pacific for October are not, at the time of writing, to hand, but the figures for the first week in October in the north show a gain of 80 per cent. compared with the same period of a year ago.

That these increases in earnings are largely due to the movement of crops practically goes without saying.

Up to the third week in October 63,302,827 bushels of grain had been received by rail at the elevators at Fort William and Port Arthur. It is estimated that up to the opening of navigation next spring, lake and rail traffic will have handled 100,000,000 bushels of Western wheat alone, which will be about one-half of the quantity available for export. The quantity of grain shipped to lake ports by water from Port Arthur and Fort William from September 1 to October 19 was 42,199,881 bushels, which is about one-half the total shipped during the whole of last season.

But while the increase in railway earnings is largely due to the movement of grain, it is by no means the only explanation. To some extent they reflect the increased movement in merchandise generally.

A 65 Per Cent. Increase in Grain

That the threshing operations in the West are revealing a harvest of even larger proportions than the preliminary estimates is indicated by the more recent returns of the Statistics Office at Ottawa.

These figures, which cover a period up to September 30, place the total wheat crop of Canada at 336,258,000 bushels, an increase of 108 per cent. over the previous year. The yield of oats was 481,000,000 bushels, an increase of over 46 per cent.; barley, 50,868,000 bushels, an increase of over 37 per cent.; rye, 2,478,500 bushels, an increase of 18½ per cent.; flax, 12,604,700 bushels, an increase of nearly 40 per cent.

The total increase in the five grains was 347,777,700 bushels, or 65 per cent.

Although the root and fodder crops are smaller than last year, yet they are estimated by Statistics Office to possess a value of $230,379,000, which is greater by $4,152,000 than that of 1914.

At the Agricultural Department, Ottawa, the aggregate value of all crops is estimated to be $250,000,000 larger than last year. If this estimate is correct it will mean a total value of $888,580,300, compared with $638,580,300 in 1914.

A Thirty-two Million Trade Balance

Among the different statistics relating to the trade and commerce of the country, none are more gratifying than those showing the export trade.

In view of the fact that the London money market is

for the time being closed to all loans except those being obtained by the Government for war purposes, it is imperatively necessary that the exports should exceed the imports. That this result is being obtained to an extent far beyond our expectations is evident from the preliminary returns recently issued regarding the trade for the first six months of the present fiscal year.

The exports of Canadian merchandise of all kinds during the six months had an aggregate value of $246,392,148, or an increase of 36 per cent. compared with the corresponding period of 1914.

As the imports of merchandise were $213,588,919 the trade balance for the six months was $32,803,229 in our favor, something for which, in view of the large charges we have to meet abroad, we should be much gratified.

Still another statistical proof of the increasing health of the trade and commerce of Canada is the record of failures.

The failures during the month of October were 175, compared with 315 the same month a year ago, a decrease of 80 per cent. The total assets of the firms failing was $1,159,445 compared with $1,153,859, and the liabilities $2,328,901 against $2,711,690, while the proportion of assets to liabilities was 49.78 compared with 42.55.

Building returns for November from seventeen cities in Eastern Ontario show an increase of 65.7 per cent., or $2,625,905 for November, 1915, as compared with $1,584,281 for November, 1914.

There was thus an all-round improvement.

Canada's Industries Hampered by Heavy Charges to Provide for Fire Losses

The direct fire loss of Canada for the past five years has averaged $23,722,246 per year, and of this amount at least seventy-five per cent. is the immediate result of personal carelessness.

To this vast sum must be added the cost of equipment and upkeep of fire departments, a proportion of the cost and expense of waterworks systems, and the money paid as premiums to insurance companies in excess of the amount returned to the policy-holders as indemnity for losses.

This latter charge amounted, for the five years 1910-14, to $52,968,061.

The above charges total approximately forty-five million dollars per annum, or a tax of over six dollars on every man, woman and child in Canada.

Canada's census returns give an average of five members to a family, with a consequent average family assessment of thirty dollars to cover the fire charge.

Canada's fire loss per capita is at least five times greater than that of any European country. The Canadian employer, in competing for business in the world's markets, must meet, among others, the additional charge for fire loss, fire protection, and fire insurance, before he can compete with his European competitors on an even basis.

Canadians must unite to take effective measures to reduce this tax. Business men and employes, alike dependent upon Canadian industry, should take precautions against the enormous fire loss lest, through this extra cost of production, their industries be unable to meet foreign competition and to furnish employment for their capital and labor.

Canadian Northern Western Service—Advantages of a Low Grade Line

According to modern ideas of railway construction, lines should be laid down with low grades and a minimum of curves. This is of advantage to the manufacturer who uses the freight service as well as to the operating railway company.

It is interesting to note in this connection that the Canadian Northern Railway's new line, started in 1896 and completed in 1915, was constructed in the "easy grade era." There has been little or no rebuilding necessary to eliminate grades or curves, and therefore no capital cost for such work.

The route of this new transcontinental service is by way of Parry Sound, Sudbury, Port Arthur, Fort William, Winnipeg, Saskatoon, Edmonton and New Westminster to Vancouver passing through hundreds of new towns and opening new fields for the manufacturer. On all this line there is an absence of any abrupt change of grade and sharp curves.

This means the elimination of breakage, because there is practically no shifting of the goods, such as would happen on an abrupt change of grade, causing a movement to the rear of a car on an up-grade and a forward movement on a down-grade on a sudden change. Few and long curves mean no throwing of goods from one side of a car to another such as happens when a delivery rig suddenly swerves around a corner.

The Western C.N.R. service includes a tri-weekly passenger service, started on November 19. The new line is equipped with modern type of electric-lighted standard sleeping cars; dining cars and first and second class coaches, constructed for this service; compartment observation and electric-lighted tourist sleeping cars will be added to these trains at an early date.

The company operates about 6,000 miles of line west of Winnipeg, serving all important points in the Provinces of Manitoba, Saskatchewan and Alberta and providing a convenient service between Winnipeg Union Station and Portage la Prairie, Brandon, Regina Moose Jaw, Calgary, Saskatoon, North Battleford, Edmonton, Athabasca, Prince Albert, Humboldt, The Pas and Dauphin.

Fort Garry station at Winnipeg, where East meets West on the C.N.R. lines.

They say that contentment consists in not wanting what you can't get, but how is a man to know what that is until he wants it and tries the getting?

Carpentry and Woodworking

Corner Posts

In a recent issue of the National Builder the following illustrations are given of corner posts. Fig. 1 shows three 2 x 4 spiked together.

Fig. 2 shows a second method for forming a corner post of 2 x 4 scantling. This sketch is a good one and shows the plan used by a subscriber, who says: "I am aware that in various parts of the country the practices with respect to corner posts in frame buildings greatly differ. BB shows the corner studs set 3 inches and 4

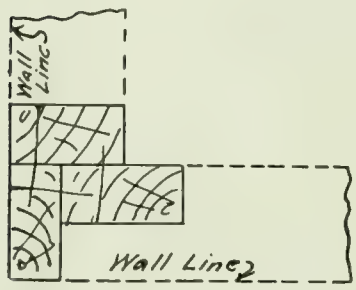


Fig. 1.– Three 2 x 4 spiked together.

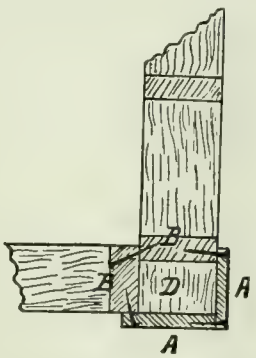


Fig. 2.—Corner post of 2 x 4 scantling.

inches, respectively, from the corners. AA are the corner boards nailed in place as shown, leaving the hollow space, which should be blocked out to the stud line at intervals. This method produces corner boards of unequal width, but they can be equalized if desired by a variation of the studding.

How French Doors Should be Constructed

A builder, writing to "The Woodworker," kicked because the cross-bars in a pair of French doors did not run through. Writing to that paper, S. F. Mount says, regarding the proper construction:

I am inclined to think that the contractor was right. A large jobbing house that I am acquainted with buys all its doors from various manufacturers and other jobbers (as it has no door-making machinery), and 90 to 95 per cent. of the French doors received are built as the contractor said they ought to be.

When this firm cannot fill an order for French doors it will take doors out of stock, which were made to receive a light of glass extending from bottom rail to top rail, and from stile to stile, and trim off the sticking by hand. Or it may take one-panel doors, cut out the panels, trim out the sticking and build in with regular sash-bars. In building in the bars, sash-bars are ripped in half, the halves nailed on top and bottom rails, and on stiles, then sash-bars not ripped are used for the cross and upright-bars. The cross-bars are coped at ends, put in first and nailed; the upright-bars, after having been coped at ends, are set between the cross-bars and nailed. It will be seen that there are no tenons or mortises. One workman claims that when cross-bars extend from stile to stile it makes a stronger construction.

The firm keeps several men continually busy cutting down doors and building in, or both cutting down and building in one and the same door, and cutting panels out of upper parts of doors to put lights of glass in. Doors are cut down both in height and width; when they are cut down in height, dowels are put diagonally through stiles and into top rail. If special sticking French doors are wanted, they will be ordered of a manufacturer. French doors that have been built in by the firm are sanded with an arm sander, if white pine, to even up the sash-bar that is nailed on rails and stiles.

Winter Business Which Builders and Carpenters May Develop

Many carpenters and builders find winter season a time for planning out work for the following season. There are other working carpenters who have not reached the contractor stage, but who can use the winter as the "thin end of the wedge" in getting into business for themselves. There is a great quantity of work open to them, such as storm windows, store fittings, cupboards, etc. Recently the American Carpenter and Builder offered prizes for the best ideas on winter work. The letters submitted contain a number of suggestions which might be easily applied by many Canadian carpenters.

Woodworker Makes Him Boss of the Situation

A. B. Kestell, who is twenty-seven years of age, has a power woodworker and therefore uses the argument in soliciting business that he does work quickly and accurately. He makes window frames, door frames, screen doors, posts, buffets, benches, all kinds of mission furniture, etc., and has made over $1,500 of store fixtures. He made sets of children's tables and chairs which he sold to a furniture dealer at $4.50 per set.

Draws House Plans Full of Latest Ideas

W. H. Humphreys uses part of the winter figuring the best development of plans, the exact amount of lumber, trim and hardware and all the requisites for house building. For instance, he studies the best arrangement of the kitchen and how to utilize the space to best advantage. It is the houses which are carefully planned which rent or sell the quickest. He figures out new devices, obtaining the ideas usually

from the builders' papers, and uses at least one in each new house.

Had a Little Machinery and Ran the Shop to Accommodate People

A small shop and some machinery helped in handling a lot of work. "We were busy all winter making and repairing furniture, putting up shelving, making counters, hog feeders, automobile boxes, gambling tables, boot-black stands, kitchen cabinets, kitchen screens, desks, tables, and repaired all kinds of furniture, even to washing machines and churns," says E. B. Harshberger.

"We didn't always make money on every job, but, by gum, I was there to get the business, and I knew that there was a good profit in it as a whole. I never turned down a job that I could possibly do. Often I worked several hours' overtime on a difficult job, and didn't charge for the extra time, but, believe me, I was well paid for it in the end."

Made Money in Agency Sidelines

When waiting for something to do, A. L. Sinclair secured several agencies for mantels, builders' hardware, roofings, screens, etc., which he retained when business was better. He says, "I have done a good building business this year, and my agency sidelines of building specialties have netted me a nice little profit which I would not have had otherwise."

Makes Crates, Screens, etc.

"I have a power woodworker," says En. Lemon. "I saw and nail up potato and onion crates, as many are used round here."

He made ladders and the ladders led to repair jobs. He never lets a job slip because it is small because the customer may have a big job on some day.

Has a Workshop at Home

A. J. Walters has a workshop at the rear of his home where he makes wood patterns, snap flasks, follow boards, tanks, dip baskets, plating hangers, etc.

Has Built Large Shop

Sometimes the builder's small shop develops into a larger one. This is the case of W. C. March who last year built a new shop, 70 x 85 ft., two storeys, where he makes odd sizes in doors, sashes, screens, counters, show cases, kitchen cabinets, etc. Grocery counters, 16 ft. long, sold for $125. He specializes on remodeling old buildings, putting in new stairways, adding porches, raising roof, etc. He keeps gangs working on the different jobs and uses two motor cars to convey them from one job to another.

Finds Wall Board Remodeling Popular

One builder secured the agency for wall board. He sends samples and calls on people selling the wall board or doing any repair jobs. One job usually leads to another.

Another builder who follows this plan has made a study of wall board paneling and decorating and has been successful in making many sales to builders of new houses, as well as to those desiring changes in older dwellings.

Weather Strips Gave Him Work

One carpenter related to The Canadian Builder how he arranged with a manufacturer of weather strip to secure it at wholesale agents' rates. He then made a canvass of the homes in his town and sold a great quantity. In addition, many wanted it put on and that gave him a great deal of additional employment for which he charged reasonable rates. In some cases he used the fact that he would put it on at a low rate as an inducement and this resulted in sales in many cases where otherwise the house owners made excuses.

An Estimate Blank

Thinking that possibly some of the readers might be interested, I am sending a copy of the estimate blank which I use in connection with my work and which I think every building contractor would find of value when making his own estimates of work, as it covers everything that occurs in a building.—Building Age.

SUMMARY OF ESTIMATE AND COST

No. ....148....

Kind of Building Graded School Architect.... F. J. M.....

For .....

Address ..... 73' x 61.8 x 37—167,000 cu. ft.

	Estimate		Estimate
1 Wrecking	$	32 Superintendent	150 00
2 Excavation, 800 yds., 35c.	270 00	33 Plumbing, drainage, gas-fittings	400 00
3 Extra Excavation		34 Plastering	900 00
4 Brick Work, 218M, $14	2600 00	35 Stucco Work	
5 Extra Brick Work		36 Painting and Varnishing	200 00
6 Tile Partitions		37 Glass, window and plate	
7 Waterproofing		38 Art Glass	
8 Rubble Masonry		39 Glazing	
9 Extra Rubble Masonry		40 Tin Work	
10 Wall Coping	12 00	41 Galvanized Iron Work	100 00
11 Flue Lining		42 Metal Ceilings	
12 Concrete, plain, 5000 cu. ft., 30c.	1468 00	43 Roofings	400 00
13 Concrete, reinforced		44 Electric Wiring and Bells	
14 Concrete, reinforcing		45 Tile and Mosaic Floors	
15 Concrete forms		46 Rough Hardware	100 00
16 Extra Cement Steps	40 00	47 Finish Hardware	60 00
17 Cement Floors, 2000 sq. ft., 12c.	250 00	48 Building Paper and Felt	34 00
18 Cement Walks and Paving		49 Structural steel, painting, erecting	160 00
19 Extra		50 Cast and ornamental iron	
20 Brick Paving		51 Joist hangers and roof anchors	
21 Cut-Stone Set	180 00	52 Elevators and Machinery	
22 Extra		53 Heating	1200 00
23 Marble Work		54 Mantels	
24 Extra		55 Blackboards	160 00
25 Lumber	1200 00	56 Water Rent	
26 Extra		57 Temporary Heat	
27 Mill-Work	1100 00	58 Cleaning up Rubbish	
28 Extra		59 Traveling Expense	
29 Carpentry work, rough, framing	850 00	60 Plans and preliminary work	
30 Carpentry work, finishers		61 General Hauling	
31 Laborers		62 Bond	

TOTAL COST.....

PERCENTAGE ADDED

PRICE SUBMITTED .....

Filling for Cracks in Old Floors

In the case of a painter in Maine who had some old floors to re-finish, the boards having warped and the joints opened to some extent, he wrote to the Painter's Magazine for information, and in reply they suggested the following method of procedure:

If the floor boards are badly warped in some places a good job cannot be made by simply filling cracks or open joints, as that would still leave the floor uneven. Wherever the edges of the boards are turned up some, it is absolutely necessary to have them planed to a level with the rest of the floor. To fill the joints or wide cracks first coat the edges of them with boiled linseed oil, which allow to become dry; then fill in with a putty made by soaking a lot of blotting or lining paper in water; squeeze out the water and mix with whiting and glue size to a fairly stiff mass, similar to glazing putty. Stain in with dry color to match color

of the floor and press firmly into joints or cracks with a flexible putty knife. Allow mass to harden, and finally remove surplus with very coarse sandpaper.

For cracks or joints 1-8 in. or less in width, a filler may be made by mixing good whiting and linseed oil putty with a small portion of dry white lead, well kneading the mass and coloring it to match the floor; then, after brushing boiled linseed oil on the edges of joints or cracks, the putty is firmly pressed in and permitted to harden. To level off the putty on top of joint or crack wet the putty knife by dipping in turpentine. When the filling has become hard even it up with the floor by going over it with sandpaper. Before filling joints, whether close or wide open, clean out dust or dirt, otherwise the filling will not be perfect.

There are crack fillers on the market for the purpose, but these will hardly suit your work, as they are not intended for very open joints, aside from being high priced.

A well-constructed verandah. The columns and all other woodwork were supplied by Batts, Limited, West Toronto.

To Prevent Veneered Doors Warping

In a recent number of "The Woodworker," W. J. Mallette discussed the question of why veneered doors warp when each side is veneered with a different kind of wood. In a later issue Edgar Arnold discussed the question of preventing warping, and gives a great deal of information of interest to builders and carpenters as well as to the manufacturers of doors. His letter is as follows:

While it is true, as he says, that some woods have greater density than others, and in the process of drying and shrinking will draw the weaker wood and twist the door, still this is not a solution of the problem.

In order to reach a correct and intelligent solution of the difficulty we must first ascertain the primary cause of warping, which is not the difference in the density and strength of the veneers, as has been suggested. The primary cause of warping is expansion of the wood, resulting from absorption of moisture, followed by unequal contraction, resulting from expulsion of moisture. The effect of the difference in the density of the veneers is merely an incident in the process of contraction, and can be taken care of and prevented if the stock is properly handled. That the difference in the veneers on the warped article is not the primary cause of the trouble is evidenced by the fact that stock will warp when the same kind of veneer is used on both sides.

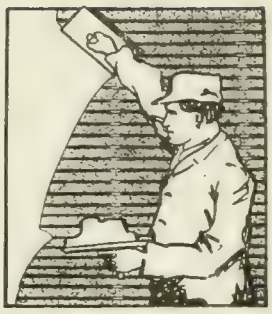
When wood absorbs moisture it expands; when it throws off the moisture it contracts. Some parts of the wood throw off the moisture more rapidly, consequently contract more readily than other parts; and this uneven contraction creates an uneven strain on the wood, which makes it bend. This is called warping, and it takes place with wood that is not veneered at all, as well as with wood veneered with one or two kinds of veneer.

From the foregoing it will be seen that the cause of warping cannot readily be eliminated from the process of veneering. But it can be overcome and held in check if we treat veneered doors, during the process of drying, so that they cannot bend; that is, hold the stronger and perhaps more rapidly-drying parts in check so their greater strength may not be used to force the weaker parts out of shape. In other words, if we pile these doors so they cannot bend during the process of drying and contracting, until they are thoroughly dry, there will be no further danger of their warping.

If we put straight veneer on a straight core, "straight" is the normal condition of the wood; and if subjected to normal conditions it will remain straight. When we put wet glue on the wood we subject the latter to abnormal conditions, the effect of which will depend on the texture of the various parts of the wood. Now if we use force to counteract the effect of these abnormal conditions—that is, keep the wood in its normal condition (straight) until the abnormal conditions have passed away, it will remain straight.

The great trouble with many veneered doors is that they are not left in the pile until they are thoroughly dry. And just before wood is thoroughly dry is the most critical period. It is at this time that the wood does most of its shrinking, and consequently its warping and twisting. Too much care cannot be exercised along this line. If the doors are made thoroughly dry before they are released, they will remain straight if they have been kept straight.

Brick Work and Plastering



Cleaning Scummed Brickwork

Another remedy for efflorescence on finished brickwork comes from Professor Williams, of the University of Illinois, who says that, if the wall presents a rather recent case of scumming, a ten per cent. solution of muriatic acid will remove the discoloration. In case of dirty buildings, as are seen in smoky cities, probably the best and most efficient mixture is simply a one per cent. solution of ordinary laundry soap. After the building is washed with this solution, it should be washed again with a ten per cent. solution of muriatic acid.

Cause of Falling Brick Chimney at Toronto University

On October 18 four chimneys on one base fell with serious results at Hart House, Toronto University. Only now has the jury arrived at the cause of the fall.

The Hart House is the fine new building under course of erection at Queen's Park, the gift of the Massey estate to Varsity. It will be used as a gymnasium and a students' union combined, and is situated just to the east of University College.

The accident happened in the west wing, toward the centre of the building. On the centre retaining wall of brick, four chimneys built out of stone stood on a heavy base. The base stood on a heavy brick wall. A duplicate of the one which fell stands at the east of the building against the sky line. The cornice on the top of the chimneys is of heavy masonry.

The Toronto Star, telling what happened said: "The masonry tore its way through concrete floors about 6 inches thick, moved an 18-inch brick wall four inches from off its base, tore a derrick to ribbons in its fall, twisted steel into snakes, made walls bulge until they looked like toppling, and much of the masonry reached the basement, about 100 feet from the top of the chimneys, killing both Harry Jones and W. Magee, who were in the basement at the time."

Jury's Report

The jury, after six weeks' investigation, gave the following verdict:

"We believe from the evidence given and shown in exhibit 5 that there was faulty construction, and we also find that the same fault appears in exhibit 1. We find, according to expert evidence, that had the centre wall been carried up proportionately the accident would not have occurred. We are also of the opinion that had cement mortar been used without the centre wall the accident would not have happened. We think that, apart from the city by-laws, had good judgment been used by the contractors in the construction of the supporting wall, the lives of these men would not have been sacrificed. We are of the opinion that the City Architect ought to have been notified when the work recommenced in April, 1915. We recommend that the City Council should apply to the Provincial Legislature to give the City Architect full power to order a change in the construction of any building to avoid accident and save human life."

Staining Streaked or Spotted Brickwork

One careless wheeler can, and often does, ruin the front of an otherwise beautiful residence. By some unfortunate circumstance, the off-colored brick seem to stay together in the car, on the wagon, in the pile in front of the building, and even though divided into hod-loads, seem still to cling to each other so that they all are placed at one point on the scaffold and used by one bricklayer—who generally works somewhere near the centre of the building and generally at the second storey sill.

In other words, a single barrow-load of brick that is lighter than its fellows has a way of appearing in the most conspicuous part of the building.

Of course, where the architect really supervises the work, he can see this discolored spot sufficiently soon after it has been built in, to make it possible for him to demand that the brickmason tear down all of this off-colored work. If, however, the architect has remained away from the building for a day or two (as architects often do) and the work has gone several feet above the spot, the owner is very apt to have a stained building on his hands and be the only sufferer.

It may comfort some property owners who wish that the wheeler had been more careful or the yard superintendent more strict, or the bricklayer less blind or the architect more constant in his supervising, to know that some brick at least can be stained so that the color will correspond to the general mass. A recent issue of the "Painters' Magazine" contained the following articles on stains that could be used on face-brick walls:

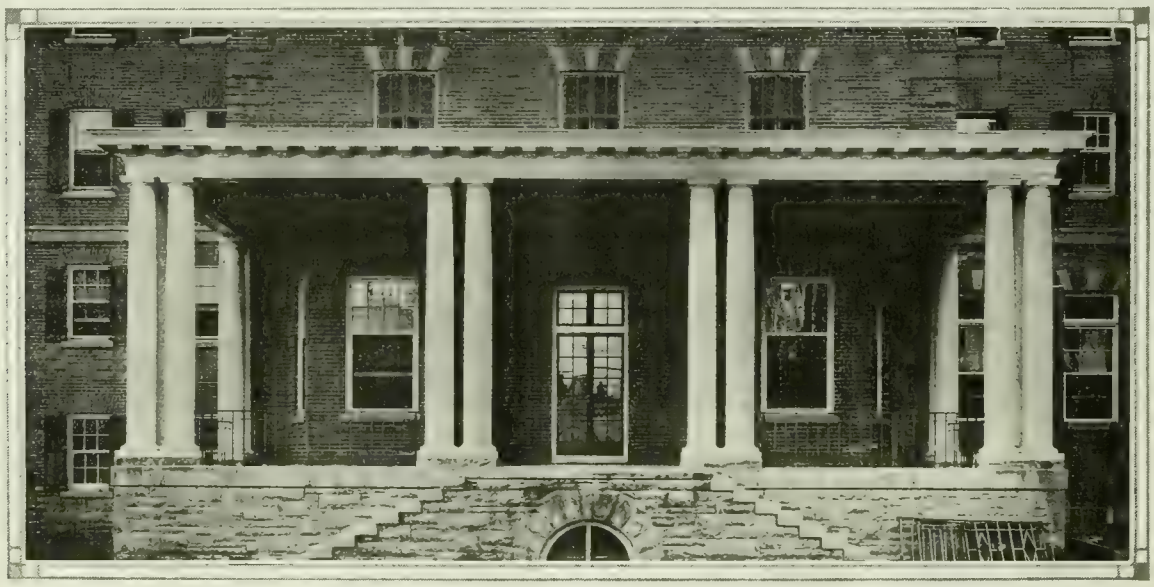
We have known of a red brick stain that was made by mixing bright Venetian red with water into a pulp, pressing it through a sieve to break up the lumps that were formed in mixing and then adding enough stale ale or beer to make the stain of a proper consistency. To each gallon of this mixture was added one-quarter of a pound of calcined green copperas (iron sulphate) previously beaten up with a portion of the stain to a thin batter. This is the mordant or fixative without which the stain would finally wash off from the effects of rain. This calcined copperas is produced by heating green copperas in an unglazed earthen pot, thus driving off the combined water; under this process the copperas falls into a dry, whitish powder.

A more durable and permanent stain is made with Venetian red that has been ground in pure linseed oil in

stout paste form or, if the stain is to be of a lighter shade, a mixture of Venetian red and French yellow ochre, both ground fine in linseed oil and beaten up with a small portion of a good turpentine japan to a smooth semi-paste, gradually adding in small quantities while stirring a mixture of one part (by measure) of 90 deg. benzol or good solvent coal tar naphtha and four parts (by measure) of turpentine until the proper consistency of stain is secured. Strain through cheesecloth and throw away the coarser particles as these would remain on the surface and be of no benefit in sealing the pores of the brick. An excess of oil in the stain is apt to produce "shiners."

British Method of Laying Bricks

There is no craft in the building trade that looks so simple and easy to an outsider as bricklaying, yet if an amateur undertakes to lay a brick he will probably be surprised at the results as compared with his preconceived notions. Apart from gauged arches and ornamental carved brickwork, where drawings are necessary, there is not any great amount of intricacy in setting out and executing an ordinary brick building, but a valuable asset to the bricklayer is a well-trained eye.



Front view of a prominent Ontario institution of solid brick construction. The verandah columns and other woodwork were supplied by Batts, Limited, West Toronto.

Before laying a brick it is necessary to have some knowledge of spreading the mortar. It should be spread evenly to the required thickness so that there shall be no violent knocking to set the brick in its proper position. The spreading of the mortar also finds out any extraneous lumps that would prevent the brick lying solid. The mortar should be sufficiently soft and plastic as to be easily spread with the trowel, and by its being plastic the waste of mortar will be more considerably reduced than would be the case if the mortar were short.

The bricklayer in working to the line will take up and spread about three trowelfuls of mortar in succession, as this is generally found to be sufficient at one time, or the mortar will stiffen before the bricks are laid. In getting up piers and quoins only sufficient mortar is spread to take one brick, and the brick is laid before spreading more mortar. In every case the bed is left a little hollow in the centre and full at the edges, so that when the brick is tapped into position with the trowel it will lie firm. The mortar should be sufficiently soft to adhere, when drawn to the side of a brick, as a cross joint. It is necessary that the brick itself should be damp and free from dust to facilitate the adhesion of the mortar.

Qualifications as a Bricklayer.

The writer on one occasion heard it said by an authority on brickwork that to see a bricklayer handling the trowel and spreading the mortar was a good guide as to his abilities at bricklaying. The manipulation of the mortar is a by no means unimportant part of bricklaying, and in reference to the cross joints, unless the same amount of mortar is applied, the face bond will be affected through the perpends not being properly kept, thus spoiling the looks of the face work and weakening the bond.

The footing courses will be the start of bricklaying in a new building, and in reference to the footings it need only be said that the courses should be perfectly level and consist of all headers.

Building the Corners.

The next important item is getting up the corners, known technically as quoins. These require to be level and upright, for upon them depend the level and perpendicularity of the adjacent wall.

It should be stated that in starting to build a quoin there is a right and a wrong way to lay a brick. Some bricks have one frog, some have two frogs, and some have none at all. In the case of bricks with one frog, the frog should always be laid uppermost, although sometimes, in order to keep a thin joint, they are laid frog downward. There is, of course, no alternative with a brick having two frogs; they are a special kind of brick, and do not form the general mass of brickwork. In the case of a brick without a frog, the brick should be laid the same way as moulded. This is generally

distinguished by faint lines indicating where the clay was struck off in filling the mould; but in every case where the brick is hollow on the bed, the hollow side must be laid downward.

Whatever bond is used in walls over 4½ in. thick, a 2¼ in. lap should be given. This is obtained by cutting a closer to a wooden gauge the requisite width. It is always used next to the starting header; then the bond is kept right on the face by making the cross joints the same width. The dimensions of the bricks must be uniform.

Tools Necessary for the Purpose.

In building the quoin the bricklayer uses a plumb rule, straightedge, and spirit level to guide him to keep the brickwork true. After the quoin is raised about 2 ft. the plumb rule is not much used, only as a check for correctness. The bricklayer uses a straightedge for every second-course corner brick laid, the bottom part of the straightedge resting firmly against the plumb bricks below. Two things should be avoided in getting up corners so that the intermediate brickwork when built shall bed solidly on the quoin. Of course, this does not refer to toothings left out for another wall, to be bonded into an existing wall at a later date.

In reference to the thickness of the bed joints, it may be stated that the happy medium is the best—neither too thick nor too thin. This is best obtained by measuring the height of four bricks laid dry, and then allow another inch for bed joints.

Having got the corners up about 3 ft. high, a gauge rod should be used to see that both quoins are rising correctly. It is much better and quicker and quite as accurate as leveling; of course, it is assumed that the corners have started from the same level course. Next the intermediate part is filled in by straining a line from corner to corner. If there is much length of line it will require tingling up to keep it from sagging. To tingle a line it is best to have a plumbing place at that point where the tingle is to be fixed so as to ensure the work being kept true. When the tingle brick is laid plumb and the correct thickness of joint, a short piece of string is looped round the line and the line drawn up to the edge of the brick. The tingle is fastened on the top of the brick by a small pat of mortar, on which is placed a piece of brick to keep the tingle firm. The line should be looked through each time it is raised as to its correctness, for the truer the line the more regular the work.

Laying Bricks to the Line.

In laying the bricks to the line it is necessary to have an eye on the top and bottom front edge of the brick at the same time, so that, when laid, the brick will be flush with the one beneath it and also just clear of the line; then there will be no hatching or irregularities of the face bricks, which spoils the appearance of otherwise good work.

The ideal way of laying a face brick is, after the mortar is spread, to avoid any hard knocking of the brick to get it into its proper position. In fact, the brick should be just squeezed or pressed into its bed by a slight rubbing motion, and the superfluous mortar caught on the trowel to form a cross joint for the next brick to be laid.

This buttering of the cross joint is sometimes objected to, but if, after the course is laid, the remaining part of the joint is properly flushed up, the objection is more apparent than real; it is the omission of properly flushing up each course that causes bad work.

The bricklayer always examines a brick before laying it. The reason is to see which end and face is square one with the other; also, in face work, the brick is examined as to its color and freedom from chips and flaws.

Importance of "Sectional" Bond.

No mention will be made of the different kinds of bond in general use, as they are too well known, but perhaps it is as well to mention an important item which is often overlooked, namely, sectional bond. No matter which bond is used on the face of the work, the same bond must be kept through the thickness of the wall. In other words, sectional bond is that the transverse joints run unbroken through the wall. When sectional bond is absent, strength will be wanting. It should have been mentioned that in laying bricks as an oversailing course, whether plain or moulded, the bricklayer strains the line to the bottom front edge of bricks and not to the top. The reason for this is that it is the underside or bottom edge of the brick course that catches the eye.

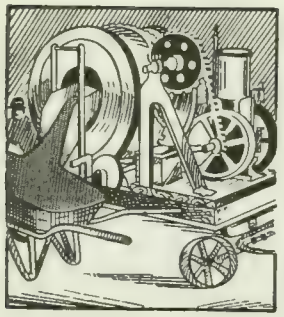
A passing reference as to bats. These accumulate by handling in transit from the brick manufacturers to the job, and the proportion of bats to a given quantity of bricks will depend on the quality of the bricks themselves. It is only fair to the builder who has to pay for them that they should be used on the job, and the bricklayer, in using them with discretion as they come to hand, will not harm the work to any appreciable extent. The evil of using bats is when they are allowed to accumulate to such an extent that they become a nuisance on the scaffolding and the bricklayer uses them in one place of the wall in order to get rid of them.

In conclusion, good bricklaying may be distinguished by the regularity of the face bond; by the absence of broken bond; the levelness of the bed joints; the perpendicularity of all angles, external or internal, producing sharp, well-defined lines; and the general smoothness of the face work.—F. Pelling in Building World.

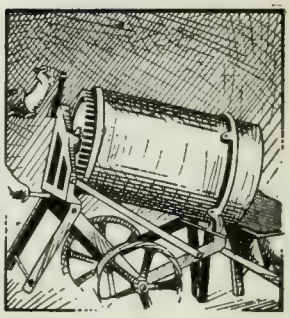
Novel Way of Handling Plaster

Handling plaster by wheelbarrows and a hoist was the method employed for the interior finish of a reinforced concrete building at Stevens Point, Wis. The plaster was mixed by hand and shoveled into steel wheelbarrows. A steam hoist on the ground had its cable led through a boom on the tower of the concrete elevator, and a landing platform projected from the floor where the plastering was in progress. The end of the cable had a three-rope sling; one rope had a hook which engaged the wheel of the wheelbarrow, and the other had iron rings to be slipped over the handles of the barrow. Four men were employed: One mixed the plaster and loaded the wheelbarrows; one handled the hoist; one wheeled the barrows to and from the hoist, attached and detached the sling and held a tag line to steady the barrow and keep it clear of the building in raising and lowering; the fourth man was on the upper floor to swing in the loaded barrow on the landing of the platform, unhitch the sling, wheel the barrows on the floor and attach the sling to the empty barrows.—Rock Products, Chicago.

A man should keep his temper while handling tools and machines as well as when handling men.



Concrete Department

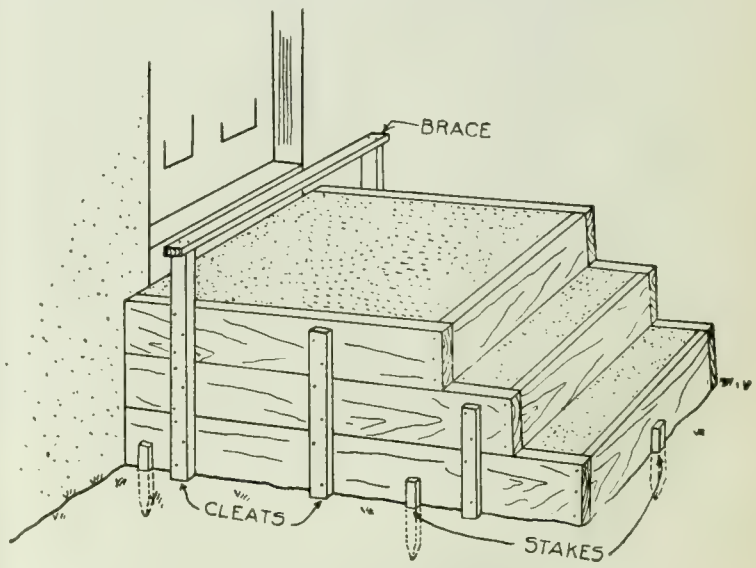


Simple Concrete Step Construction

Steps are not only subject to hard usage, but when constructed of wood with the lower part in contact with the ground and subject to alternate wetting and drying, decay is very rapid, making them unsafe and dangerous. Steps at the rear or kitchen entrance of the house encounter especially hard usage, but it is a very easy matter to have them durable and safe by constructing them of concrete. A simple method of doing this is shown in the accompanying drawing. The three forms consist merely of that many boxes open at top and bottom and also at the end adjoining the door-sill.

A rise of 8 inches and a tread of 10 inches will be found convenient. For this reason the height of each box should be 8 inches, since every box will form a step. All of the boxes should be of the same width, but each one is 10 inches shorter than the one beneath it, thus forming the tread of the step. If the steps are few in number and not wide, 1-inch boards will be stiff enough to hold the concrete without bulging, but if there is any doubt about this it is better to use 2-inch plank. The concrete for the steps should be mixed in the proportion of 1 bag of Portland cement to 2½ cubic feet of clean coarse sand to 4 cubic feet of crushed rock or pebbles. The earth beneath the steps should be excavated to a depth of 6 inches below the surface, the excavation being the exact size of the bottom of the steps. Make sure that the earth is level and compact at the bottom of the excavation. Place the largest box in position around the edge of the excavation, staking it in place at two or three points to prevent shifting. Level the first box very carefully by means of a carpenter's spirit level. The concrete, mixed rather dry, should be deposited in the box and thoroughly tamped and compacted until moisture rises to the surface. Work or spade the concrete thoroughly along the sides of the forms so as to produce a smooth surface. At the front end of the box, where the concrete becomes the tread, the surface of the concrete is carefully leveled off and smoothed with a trowel for a distance of about twelve inches from the outer edge. Immediately after this is done the second and smaller box is placed on top of the first one, being fastened thereto by a few nails through the upright cleats shown in the drawing. The nails must not be so long as to project through the forms and into the concrete. Fill the second box with concrete immediately, being careful that no dirt or other foreign matter falls or collects on the surface of the first batch of concrete, as this would prevent a good bond between the two layers. Finish this step or slab in exactly the same manner as described for the first step. The last or third step is constructed in exactly the same manner as those previously described.

The brace between the two back cleats is for the purpose of preventing the boards from spreading at the side next to the wall. The outer surface of the top step is carefully leveled off with a straight-edge and finished by troweling to a smooth surface. Excessive troweling, however, must be avoided Not more than a half hour should elapse between placing the concrete for each step so that the concrete first deposited will not harden and set up before the next form is filled. After the steps are about one week old, the forms may be removed and the steps used After the forms are removed any roughness or irregularities may be smoothed down and the surface of the entire steps finally finished by rubbing with an old piece of emery wheel and water or carborundum and water. Where the work includes many steps, a hollow space is generally left under the main body of the steps to



Simple forms for constructing concrete steps

effect a saving in materials. Where this is done the platform and steps are reinforced with steel rods or heavy wire mesh to prevent cracking.

Effect of Temperature on Strength of Concrete

The effect of temperature on strength of concrete is discussed in Bulletin 81 of the Engineering Experiment Station of the University of Illinois, and the following conclusions are reached: Under uniform temperature conditions there was an increase of strength with age within the limits of the tests. For any temperature the rate of increase decreases with the age of the specimen; and this rate of increase is less correspondingly at the lower temperature conditions. For the specimens tested under normal hardening temperature conditions of from 60 to 70 deg. F., the compressive

strength of the concrete subjected to a uniform temperature at the ages of 7, 14, and 21 days may be taken as approximately 50 per cent., 75 per cent, and 90 per cent. of the strength at 28 days respectively. For lower temperatures the percentage values are less, and for higher temperatures the percentages are higher. The relation between the percentage values at the ages of 7, 14, 21 and 28 days is nearly the same for temperature conditions from 30 to 70 deg. F. However, the values for the lower temperatures should be used with caution. Concrete which is maintained at a temperature of 60 to 70 deg. F. will at the age of one week have practically double the strength of material which is kept at a temperature of 32 to 40 deg. F.

Methods of Repairing and Patching Concrete

The following data of the various methods used in repairing and patching concrete structures were collected by the Committee on Masonry of the American Railway Engineering Association:

Wet Method.

The surface of the old concrete is thoroughly roughened, cleaned, and drenched with water, and covered with a cement grout. Then the new concrete is mixed to a sloppy consistency and applied, being held in place till set by forms, as required.

From the reports received, it appears that many successes and many failures have followed this method. Where it has been successful, that result probably has been due to painstaking care and expense being employed in the preliminary cleaning and thorough wetting of the old concrete surfaces before the new concrete is applied.

Moderately Dry Method.

The surface of the old concrete is thoroughly roughened, cleaned, drenched with water, and powdered with cement or painted with cement grout, after which the new concrete is applied and thoroughly tamped against the old surface. Generally, such patches are kept moist by sprinkling them with water for several days.

The same comment applies here as to the wet method.

Dowel Method.

This is a modification of the two preceding methods, and is generally used for other than horizontal surfaces, although it may be applied to the latter. The new concrete may have any consistency to meet the particular conditions or the ideas of the engineer in charge; but usually a fair wet concrete is used. This method includes drilling holes and setting dowels into the old concrete, with projecting ends to engage into the new concrete. Sometimes steel bars or metal fabrics are connected to these dowels to further ensure permanency of the pitch.

This method can be made uniformly successful, but cannot always be applied. Where any considerable mass of new concrete is to be connected to old concrete, this is the only safe method to pursue.

Wedge Method.

This method includes the cutting out of defective concrete in such a manner as to undercut the surrounding good concrete so that the new concrete will be held in place, when set, by the shape of the binding edges of the old concrete.

The difficulty of under-cutting concrete so as to secure such edges is too great to make this method applicable in ordinary cases; and, except where a considerable depth of new concrete is to be put in, such under-cutting could not be successfully done, as concrete cannot be cut so as to leave sharp, clean edges.

Cleaning with Steam.

This is a method of cleaning surfaces of old concrete, preparatory to putting on a patch of new, or of cleaning the top of a rough concrete floor before applying the "finish coat." The surface of the old concrete is brushed as clean as possible with stiff brushes, and then gone over at least twice with a steam jet. An ordinary piece of ½-in. gas pipe makes a very satisfactory jet nozzle. This short length of pipe is connected to a steam hose so that it can be readily moved about. The steam is supplied by the boilers of the mixer or hoisting engines. The steam will clean and heat the concrete surface, leaving it perfectly dry, so it is important to drench the surface thoroughly with water after cleaning with steam. In cold weather it is found advantageous to use hot water. Immediately after the surface is thoroughly cleaned and drenched, the new concrete is applied.

Excellent results have followed the use of this method of cleaning; but it is essential that the surface of the old concrete be thoroughly drenched with water after using the steam jet, otherwise the new concrete will not adhere to the old.

Cleaning With Acid.

This method includes washing of the surface of the old concrete with a solution of hydrochloric (muriatic) acid (one part acid to two parts water), after which the surface must be carefully and thoroughly washed to remove any free acid.

This is a very commonly applied method of cleaning old concrete surfaces preparatory to placing new concrete against them, and, by many, is considered the only safe treatment to use, especially in cases where a "finish coat" is to be put on after the concrete base is set.

Concrete Foundations for Small Engines

To obtain the highest efficiency an engine should have a heavy and firm foundation. This will not only reduce wear and tear incident to excessive vibration, but will result in prolonged and better service.

After the exact location of the centre line of the foundation has been carefully established, a pit 2 feet to 4 feet deep should be excavated, the length and width being the exact size of the footing. Deposit the mushy wet concrete to the depth determined on the plan. In order thoronghly to key the engine foundation to the footing, embed 3-in. or 4-in. stones in the portion of the footing under the engine so that they will protrude from the footing.

A box form, 8 inches larger in length and in width than the engine base should be carefully set over the footing. The inside of the forms should be thoroughly oiled to prevent the concrete from adhering to them. It is essential that the anchor bolts for the engine be carefully spaced and so placed as to take care of

any small variations in position. Use a template for this purpose, and supply for each bolt greased gas-pipes of twice the diameter of the bolts, the pipes to be removed before the engine is set. The purpose of the pipes is to provide for such slight adjustment of bolts as may be required. The anchor bolts should be embedded in the concrete at least 18 inches, and supplied with cast-iron washers at the lower ends.

After the template has been accurately set over the forms, and the bolts so arranged that the tops are at proper elevation, the concrete is carefully deposited and spaded in the forms. Turn the gas-pipes from time to time, thus preventing them from sticking to the concrete. The concrete along the forms should be carefully spaded to prevent the formation of air-bubbles or pockets.

Damp burlap should be placed over the form after the concrete is placed. This will insure normal setting of the material. After 24 hrs. remove the form. The engine may be set and the bolts adjusted after 48 hrs. Before the engine is set remove the gas-pipes referred to above, and when the engine is finally placed fill the space around the bolts with 1:1 mortar.

Do not use the engine until the base is at least two weeks old. If necessary to have an exhaust or drain pipe, this may be installed in the form before the concrete is deposited.

Novel Method of Timing Mixture

The monthly Record of the Assn. of Am. Portland Cement Mfrs. says, under the title, "Novel Methods of Timing Mixture":

An inexpensive and novel method of timing the mix is being used on the concrete paving being placed by the Canadian Steel Corporation at Ojibway, Ont. A minute-glass mounted on a pivot placed in a cigar-box has been placed on the mixer in a position convenient to the operator. When the hopper is raised, the operator reverses the sand-glass by swinging it on the pivot and when the upper part of the glass is empty, the batch is ready to dump. As a one-min. sand-glass could not be secured for this purpose, the end of a three-min. sand-glass was filled and the sand for a two-min. period was removed. The apparatus is quite simple and will insure a definite time of mixing instead of the usual guess methods employed.

It should be noted that the time of mixing should be governed by the particular mixer used.

Cleaning Concrete and Stone

A wire brush provided with a suitable shank and operated by an electrical drill is said to be a cheap and very effective tool for cleaning concrete and stone surfaces. It is probable that this would be an effective device for cleaning forms.

In all concrete work stops should be made on horizontal and perpendicular lines, the forms being carefully placed.

Concrete, after thorough mixing, should be poured and worked into final position in the forms before the initial set is complete, and it must not thereafter be disturbed.

News of Builders' Exchanges

Monthly Meeting of Montreal Exchange

At the regular monthly meeting of the Board of Directors of the Montreal Builders' Exchange, the financial affairs of the association were shown to be in a satisfactory condition, there being a balance on hand of $624.87.

E. W. Sayers was nominated to represent the Exchange on the committee to be formed by the Canadian Credit Men's Trust Association, Limited, to take up the question re a Commercial Code for the Province of Quebec.

Vice-president Sayer also was appointed the Exchange representative to vote at the municipal elections in 1916.

A letter from the Assistant City Clerk was read, inviting the Exchange to transmit to the Legislation Committee of the City Council any suggestions relative to amendments to be made to the City Charter. Directors Sayer, Barbeau, Allan, and Muir were appointed a committee to draft suitable amendments and submit same to next meeting of the board.

The Missisquoi Marbles, Ltd., 910 Birks Building, were admitted to membership in the Exchange.

Workmen's Compensation Act in Manitoba

Representatives of the Canadian Manufacturers' Association recently conferred with representatives of the Trades and Labor Council and members of the Winnipeg Builders' Exchange, with respect to a proposed Workmen's Compensation Act for Manitoba. Considerable attention was paid to Ontario's new Act, which has been in operation a year.

Those present at the meeting were: W. R. Ingram (president), T. R. Deacon and Secretary Webster for the Manufacturers' Association; R. A. Rigg, A. W. Puttee and T. J. Murray for the Trades and Labor Council; W. J. Davidson and W. H. Carter for the Winnipeg Builders' Exchange.

Montreal Exchange Honors Soldier Member

Major E. G. M. Cape, commanding officer of the Third Overseas Battery, Siege Artillery, was entertained by the Montreal Builders' Exchange on Nov. 18, about 125 of his former colleagues in the allied building trades being present to do him honor. A service revolver was presented to him, while Mrs. Cape was remembered by the gift of a handsome bunch of red roses. A feature of the evening was the presence of Capt. A. Charlebois, of the Third Canadian Engineers. Although wounded in four places and walking with the aid of two crutches, he declared he was going back to fight "just as soon as he could get rid of the sticks." His optimistic speech and stories of life in the front trench raised enthusiasm to the highest pitch.

Mr. John Quinlan, president of the Builders' Exchange, took the chair, and with him at the head table were Major Cape, Lt.-Col. John Costigan, Thos.

Gilday, Lieut. Linton, Mr. Alex. Bremner, Wm. Rutherford and Capt. A. Charlebois.

After the toast "The King," had been honored, and the Army and Navy had been proposed by Mr. J. P. Anglin, Col. Costigan and Lieut. Linton, Mr. E. W Sayer proposed the health of the guest of the evening, Major Cape, and presented him with the revolver and the flowers.

Conventions of Clay and Cement Men

The fourteenth annual convention of the Canadian National Clay Products Association will be held at the King Edward Hotel, January 18, 19 and 20, 1916. G. C. Keith, 32 Colborne St., is secretary.

The ninth Chicago Cement show will be held at the Coliseum and First Infantry Armory, Chicago, Feb. 12 to 19, 1916.

The thirteenth annual convention of the National Brick Manufacturers' Association will be held at Hotel Statler, Cleveland, Ohio, Feb. 20-26, 1916. Mr Theodore Randall, Indianapolis, is secretary.

A complete building show is to be held at Cleveland, Ohio, Feb. 16 to 26, 1916.

Commission of Conservation— Collecting Data on Uniform Building Laws

The Commission of Conservation has secured data with regard to uniform building laws wherever such are in force, this investigation being conducted in connection with a study of the causes and extent of fire losses in Canada. The question of a uniform law will receive full consideration in the report on "Fire Losses," to be issued by the Commission.

In connection with uniform building laws, the Commission has asked the city architects of a number of the chief cities of Canada to give their opinions of what such a national building by-law should contain.

From City Architect Pearse, of Toronto, the commission has received several suggestions. One is that it would be a great help if a central bureau could be maintained where the municipalities could get information in reference to the fire-resisting qualities and the strength of the different materials used in buildings. City departments are now forced to get such information from fire underwriters or cities in the United States. Toronto uses the testing laboratory of the University of Toronto, but this is closed to the city during school sessions.

Mr. Pearse suggests that an advisory code might well be prepared to guide the municipalities with reference to minimum requirements which should be enforced for fire protection. The municipalities themselves might enforce a more rigid code if they saw fit.

Fire Test of "Linabestos"

The fire-resisting qualities of "Linabestos" were tested at the Toronto Fire Department's headquarters recently. Assistant City Architect Price and other officials of the City Architect's department and Acting Fire Chief Wm. Smith witnessed the test. A miniature house was built and a fire lit within it. This was allowed to burn for 36 minutes, when the hose was turned on it. While the force of the water was such as to crack the linabestos, the fire had been so restrained in that room that the wood had not been burned, and consequently no hole or break was made through the room thus lined.

Pictures were taken before the fire started, during its progress, and after it was put out, thus making a complete record of the successful manner in which linabestos stood this hard test.

Catalogue Reviews

Roofing and Siding.—A folder from the Newport Rolling Mill Co., Newport, Ky., describes their sheet metal building material for use for roofing, siding, eaves troughs, tanks, ventilators, frames, arches, flashings, etc.

Hair Insulator.—The Canadian H. W. Johns-Manville Co., Toronto, have issued a booklet on the J-M Keystone Hair Insulator, illustrating and describing its application.

Handsome Showroom for Builder's Hardware

W. Walker & Son, wholesale hardware merchants, have fitted up a showroom in their new establishment at 1228 Yonge St. This showroom is furnished with a long table and several chairs for the convenience of customers when estimating on contracts. It is located on the second floor, away from all noise and interruption that is bound to occur in the store proper.

Attractive displays of grip handle front door setts in various patterns, brass and cut glass knobs, mortise locks, master key sets, casement fastener adjusters, bolts and all other hardware that is necessary in the building business, are arranged on shelves around the room.

Another convenience provided for customers is a motor car, which will call for one when the request is made.

Special attention is paid to out-of-town business.

War Has Opened New Fields for Portable Woodworkers

The Elliot Woodworker, Limited, Toronto, report that the war has opened up a new field for their portable machines. A number of firms have started the manufacture of toys and other wooden specialties and find the Elliot machines specially adapted for their requirements.

Besides the woodworker, this company makes a combination scroll saw and shaper, bench jointer, drum and floor sander and other woodworking specialties.

Orders have recently been received from many companies for Elliot woodworkers, to be used for cutting up stock for shell boxes.

MULTIGRAPHING—We are now in position to supply any of our clients with excellent multigraph work at lowest cost. The Commercial Press, Limited, 32 Colborne St., Toronto. tf.

PRINTING Circulars, letterheads and other job printing; prices moderate; work first class. The Commercial Press, Limited, Toronto. tf.

Price List of Building Materials—Revised to Date

EDITOR'S NOTE—Great care is exercised in obtaining prices for this department. They are as accurate as it is possible for us to make them. We know, however, that because of varying conditions, different dealers' prices are bound to vary somewhat; and our purpose in publishing this department is to give readers an idea of prices, rather than absolutely definite information.

PRICE AT MONTREAL

Hemlock Lumber

2 x 4 in. to 2 x 12 in., 8 to 14 ft.	$24.00
2 x 4 in. to 2 x 12 in., 16 ft.	26.00
2 x 4 in. to 2 x 12 in., 18 ft.	28.00 to 30.00
1 in. hemlock No. 1	22.00
No. 1 hemlock decking	23.00 to 25.00
No. 2 hemlock dimensions and 1 in.	26.00 to 30.00

Pine

1 in. common and better pine 8 to 12 in. wide, rough	$32.00 to 40.00
2 in. white pine, mill stock	29.00 to 33.00
⅞ x 8 and 10 in. pine shelving	36.00 to 45.00
⅞ x 12 pine shelving	42.00 to 50.00
No. 1 white pine flooring	40.00
No. 1 spruce flooring	30.00
No. 1 pine decking, D2S	40.00
No. 1 pine V. or beaded sheeting	40.00
No. 2 pine V. or beaded sheeting	30.00

Pine Trim for Paint Finish

4 in. casing, per 100 ft.	$1.75
5 in. casing, per 100 ft.	2.10
8 in. pine base, per 100 ft.	3.25
10 in. pine base, per 100 ft.	4.20
4 in. pine window stool, per 100 ft.	2.75

Shingles, Lath Roofing, Etc.

No. 1 pine lath	5.00
No. 2 pine lath	4.50
No. 1 spruce lath	4.00

Cedar Posts—Fence

5 in. at small end	5c. foot
7 in. at small end	7c. foot

Hardware

Nails, wire, common	$2.30 base keg
Nails, cut, common	2.50 " "
Sash weights, cast iron	1.50 per 100 lbs.
Tarred felt paper	.43 roll
Building paper	.35 roll

Brick, Tile, Terra Cotta, Sewer Pipe

No. 1 dry pressed red bricks	17.00
No. 1 dry pressed buff bricks	21.00
Red stock bricks	11.50
Grey stock bricks	12.00
Wire cut brick for foundation work	10.00
Fire brick	25.00
Sewer pipe, 4 inch	10c. foot
Sewer pipe, 6 inch	15c. foot

Cement, Plaster, Stone, Etc.

Cement (bags extra)	1.90 bbl.
Sand, for cement or brick work	.95 ton
Lime	.38 per 100 lbs
Hydrated lime	10.00
Mortar color	5.00 bbl.
Plaster of paris	2.35
Crushed stone 2 in.	1.40
Crushed stone, 1 in.	1.60
Crushed stone, ⅜ in.	1.75
Hardwall plaster	$6.50 per ton
Gravel	1.35 yard
Hair (plaster)	.03 per lb.

PRICE AT TORONTO

Hemlock Lumber

2 x 4 in. to 2 x 12 in., 8 to 14 ft.	$21.00 to 29.00
2 x 4 in. to 2 x 12 in., 16 ft.	21.00 to 29.00
2 x 4 in. to 2 x 12 in., 18 ft.	24.00 to 30.00
1 in. hemlock No. 1	22.00 to 26.00
No. 1 hemlock decking	24.00 to 28.00
No. 2 hemlock dimensions and 1 in.	18.00 to 23.00

Pine

1 in. common and better pine 8 to 12 in. wide, rough	$25.00 to 33.00
2 in. white pine, mill stock	29.00 to 34.00
⅜ x 8 and 10 in. pine shelving	33.00 to 40.00
⅞ x 12 pine shelving	45.00 to 48.00
No. 1 white pine flooring	34.00 to 37.00
No. 1 spruce flooring	27.00 to 32.00
No. 1 pine decking, D2S	26.00 to 31.00
Spruce decking	27.00 to 32.00
No. 1 pine V. or beaded sheeting	35.00 to 39.00
No. 2 pine V. or beaded sheeting	30.00 to 33.00

No. 1 Common Yellow Pine

2 x 4 in. to 2 x 14 in., 10 to 16 ft.	$31.00 to 40.00
2 x 4 in. to 2 x 14 in., 18 to 20 ft.	33.00 to 42.00
2 x 4 in. to 2 x 14 in., 22 to 24 ft.	35.00 to 44.00

Yellow Pine Finish

4/4 x 6, 8, 10 and 12 B. & B. smoke finish	$45.00
5/4 x " " " "	52.00
6/4 x " " " "	52.00
8/4 x " " " "	60.00
4/4 x " " " steam finish	48.00 to 52.00
5/4 x " " " "	50.00 to 55.00
6/4 x " " " "	50.00 to 55.00
8/4 x " " " "	60.00 to 65.00

Pine Trim for Paint Finish

4 in. casing, per 100 ft.	$1.80 to 2.00
5 in. casing, per 100 ft.	2.00 to 2.50
8 in. pine base, per 100 ft.	2.75 to 3.25
10 in. pine base, per 100 ft.	4.00 to 4.50
4 in. pine window stool, per 100 ft.	3.00

Hardwood Trim, Flooring, Etc.

Quotations will be given on request.
See editor's note above.

Shingles, Lath Roofing Etc.

XXX B. C. cedar shingles	$3.35 per M
N. B. extras	4.00
No. 1 pine lath	5.00 to 6.00 per M
No. 2 pine lath	4.75 to 5.00
No. 1 spruce lath	4.25
Roofing	1 ply—$1.60 per sq.
	2 ply— 2.00 "
	3 ply— 2.40 "

Cedar Posts—Fence

5 in. at small end	.25 each
7 in. at small end	.50 each

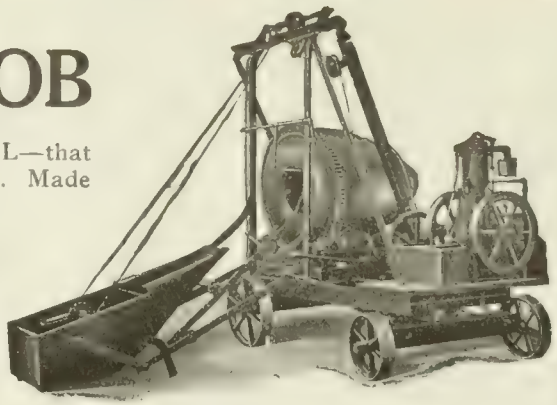
Hardware

Nails, wire, common	$2.85 cwt.
Nails, cut, common	3.50
Sash weights, cast iron	2.00
Tarred paper	.60 roll
Building paper, plain	.50

NOTE TO READERS. We would be glad to have suggestions from readers as to the extension or modification of this list.

FOR THAT RUSH JOB

You must have an equipment that works QUICKLY and WELL—that saves money and labor. It is a Wettlaufer Heart Shape Mixer. Made in Canada by a Canadian firm.



No. 1 Heart Shape Mixer
Rapid and perfect mixing, increased capacity, long life. Write for catalog.

Made in Canada

Wettlaufer Singer Block Machine

The block maker's favorite. Adjustable. Making all sizes up to 12 x 20 inch blocks. Every block perfect.

1915 Model Hand Mixer

Write for our special offer. This mixer pays for itself in 7 days.

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Head Office and Warerooms: 178K SPADINA AVE., TORONTO

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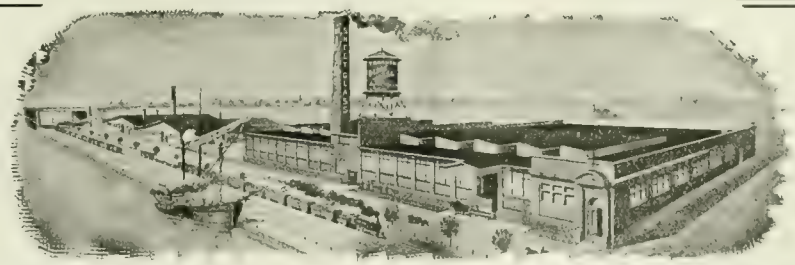


GLASS BENDERS TO THE TRADE

THE TORONTO PLATE GLASS IMPORTING COMPANY, LIMITED

DON ROADWAY — **Plate, Window, Figured, Stained, Wired, Bent, Mirror and Ornamental Glass** — TORONTO

This Paper costs $1.00 per Year—less than 10c. each month. If you are not now getting it regularly, will it not pay you to subscribe?

The Canadian Builder & Carpenter
32 Colborne Street, Toronto

Price List of Building Materials—*Continued.*

Price at Toronto—*Continued*

Glass

United inches	Star	D.D.
Up 25 (per 100-ft. box)	$6.50	8.60
26-40	$7.00	10.00
41-50	7.40	11 70
51-60	8.00	12.00
61-70	8.75	12.75
71-80	9.50	13.85
81-85	10.50	17.50
86-90		18.85
91-95		19.20
96-100		22.75
101-105		32.00
106-110		36.00

Less 20 p.c. F.O.B. Toronto.

Wired glass	16c per sq. ft. less 10 p.c.

Brick, Tile, Terra Cotta, Sewer Pipe

No. 1 dry pressed red bricks	$14.00 to 18.00 pr M
No. 1 dry pressed buff bricks	14.50 to 18.00
Red stock bricks	10.00 to 12.50
Sand lime brick	8.50
Grey stock bricks	10.50 to 12.50
Sewer brick	8.75 to 9.50
Wire cut brick for foundation work	8.00 to 9.00
Porous terra cotta bricks	12.00 to 15.00
No. 1 enamelled bricks, all colors, from	80.00 to 150.00
Fire brick	26.00 to 30.00
Rough texture brick	15.00 to 17.00
Sewer pipe, 4 inch	10c. foot
Sewer pipe, 6 inch	16c. foot
Verandah post caps, 16 in.	1.45 each
Verandah post caps, 20 in.	1.75 "
Chimney caps, 1 flue in 1 piece	2.00 "
Chimney caps, 2 flues in 2 pieces	3.50 "
Chimney caps, 3 flues in 3 pieces	5.00 "

Cement, Plaster, Stone, Etc.

Cement (bags extra)	$1.85 bbl. (1.55 in car lots)
Sand, for cement or brick work	1.20 a yard
Lime	.38 cwt.
Hydrated lime (Canadian)	10.60 ton
Hydrated lime (American)	13.35 "
Mortar color	black, 3; red, 2
Plaster of paris	$1.50 to 2.50
Crushed stone, 2 in.	1.20
Crushed stone, 1 in.	1.25
Crushed stone, ⅜ in.	1.25
Hardwall plaster	7.00 neat 4.00 to 5.00 sanded
Gravel	1.50
Hair (plaster)	.07 lb.

PRICE AT WINNIPEG

Hemlock Lumber

2 x 4 in. to 2 x 12 in., 8 to 14 ft.	$29.00
2 x 4 in. to 2 x 12 in., 16 ft.	29.00
2 x 4 in. to 2 x 12 in., 18 ft.	29.00

Shingles, Lath Roofing, Etc.

XXX B. C. cedar shingles	$4.00 & 3.50 per M
No. 1 pine lath	5.75 per M
Metal lath	.16 to .20
Roofing felt (2-ply)	2.50 per roll

Hardware

Nails, wire, common	$3.70 per keg
Nails, cut, common	3.70
Sash weights, cast iron	2.75 cwt.
Tarred felt paper	1.00 per roll
Building paper	.75
Insulating paper	1.25

Price at Winnipeg—*Continued*

Glass

United inches	Single	Double
Up 25	$6.00	8.00
26-40	6.50	9.00
41-50	7.00	10.25
51-60	7.50	11.00
61-70	8.00	11.75
71-80	8.50	12.75
81-85		15.75
86-90		16.75
91-95		17.75
96-100		21.00
101-105		23.50
106-110		27.00

Brick, Tile, Terra Cotta, Sewer Pipe

No. 1 dry pressed red bricks	$25.00 to 50.00
No. 1 dry pressed buff bricks	30.00 to 40.00
Red stock bricks	25.00
Sand lime brick	12.00
Porous terra cotta bricks	18.00 per M
No. 1 enamelled bricks, all colors, from	100.00
Fire brick	52.50
Oriental brick	35.00
Sewer pipe, 4 inch	.11 per ft.
Sewer pipe, 6 inch	.18½ per ft.

Cement, Plaster, Stone, Etc.

Cement (bags extra)	$2.60 per bbl.
Sand, for cement or brick work	1.85 a yard
Lime	.34 per bu.
Hydrated lime	12.00 per ton
Mortar color	.05 per lb.
Plaster of paris	.75 per bag
Crushed stone, 2 in.	2.65 per yard
Crushed stone, 1 in.	2.90
Crushed stone, ⅜ in.	2.90
Hardwall plaster	13.00 per ton
Gravel	1.85 per yard
Hair (plaster)	1.25 per bale

PRICE AT VANCOUVER

Shingles, Lath Roofing, Etc.

XXX B. C. cedar shingles	$2.20 & 2.10 per M
No. 1 pine lath	2.25 per M

Hardware

Nails, wire, common	$3.25 per keg
Nails, cut, common	4.25
Tarred felt paper	.90 per roll
Building paper	.70

Brick, Tile, Terra Cotta, Sewer Pipe

No. 1 dry pressed red bricks	$42.00 per M
No. 1 dry pressed buff bricks	42.00
Red stock bricks	13.00
Fire brick	45.00
Sewer pipe, 4 inch	.25 per ft.

Cement, Plaster, Stone, Etc.

Cement (bags extra)	$3.00 per bbl.
Lime	1.35 per bbl.
Hydrated lime	4.25 per bbl.
Plaster of paris	4 50 per bbl.
Hardwall plaster	14.50 per ton
Hair (plaster)	14.50 per ton

NOTE TO READERS. We would be glad to have suggestions from readers as to the extension or modification of this list.

Advertisements that Remind You

R. Laidlaw Lumber Co., Limited

Everything in Lumber

Timbers, Sash Doors, Columns, Etc.

Head Office: 65 Yonge St., TORONTO

W. Walker & Son

Hardware Merchants

1228 Yonge Street Toronto

North 3136. Private Branch

"The house of well-made Hardware."

Get our prices. We are specialists in Builders' Hardware—always a large stock on hand.

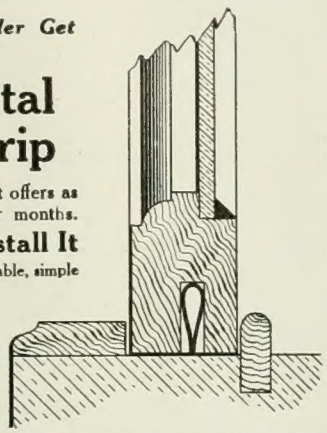
Mr. Carpenter and Builder Get Acquainted With

Pullman Metal Weather Strip

and the tremendous opportunity it offers as a profit maker during the winter months.

It Sells Itself—You Install It

It reduces fuel bills over 30%. It is durable, simple to ins all and lasts a lifetime. Write for biggest money-making weather strip proposition ever offered. Exclusive territories.



Pullman Metal Weather Strip Co. 22 York Place York, Pa.

DENNISTEEL
LONDON - CANADA

THE BEST STEEL LOCKERS MADE IN CANADA

MADE BY
THE DENNIS WIRE AND IRON WORKS CO. LIMITED
LONDON, CANADA

This is a reminder to read ALL the advertisements in The Canadian Builder and Carpenter every month.

NOTE-NAIL PASSES THROUGH BOTH MOULDING AND FELT.

The Most Effective Weather Strip Made

It will thoroughly exclude **Wind, Cold, Snow, Rain** and **Dust** and the fact that the **felt** is **glued** to the **bottom** of the **moulding** makes it the only **dust-proof** weather strip on the market.

Write for Free Sample to **Empire Agencies, Ltd., 61 Adelaide St. E, Toronto, Ont.** Rep'tive for Ontario. **Beware of imitations. For Sale at all Leading Hardware Stores.**

Made by—W. J. Dennis & Company

2222-24-26 W. Lake St. Chicago, U.S.A.

The "Peace" Patent
Improved
Metal Weather Strip
For Windows and Doors

To Carpenters and Builders this weather-strip constitutes a necessary part of the equipment in the building of factories, offices and residential property. It is wind and dust proof, and reduces fuel bills. Windows work easier with than without it. It does away with storm sash, and lasts a lifetime. Write for illustrated pamphlet or further information to

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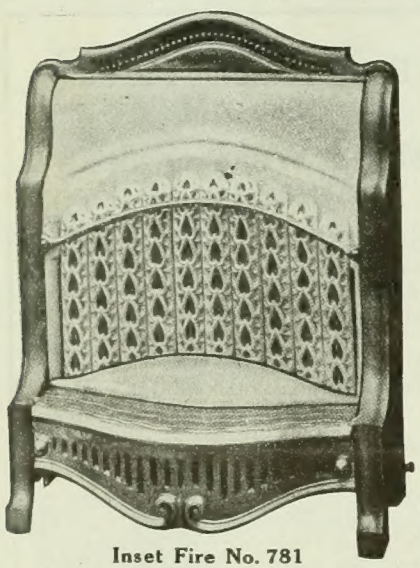

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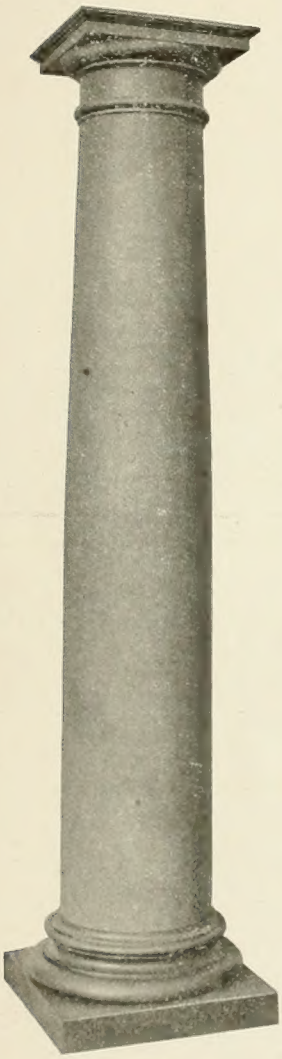

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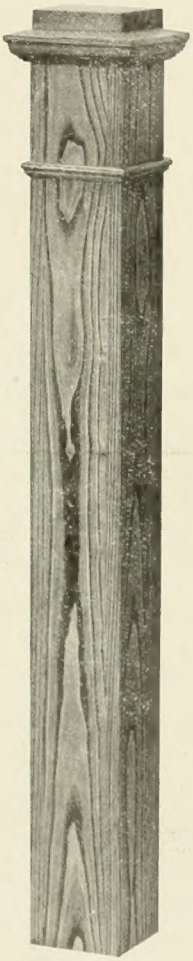

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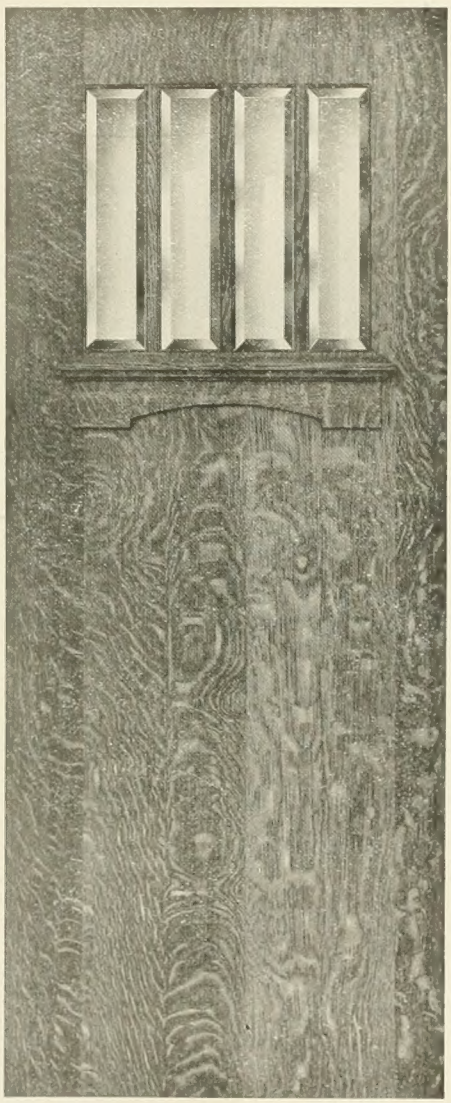

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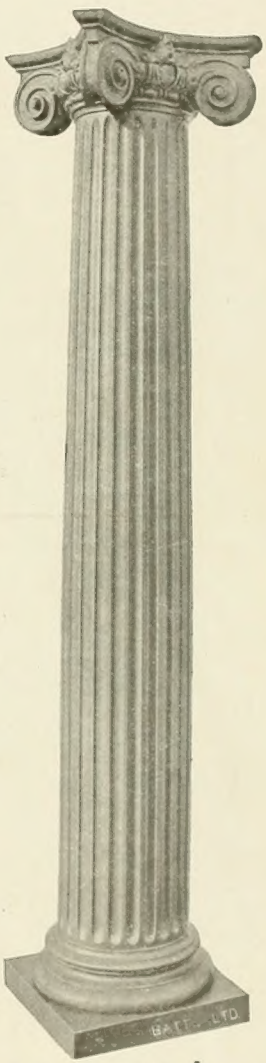

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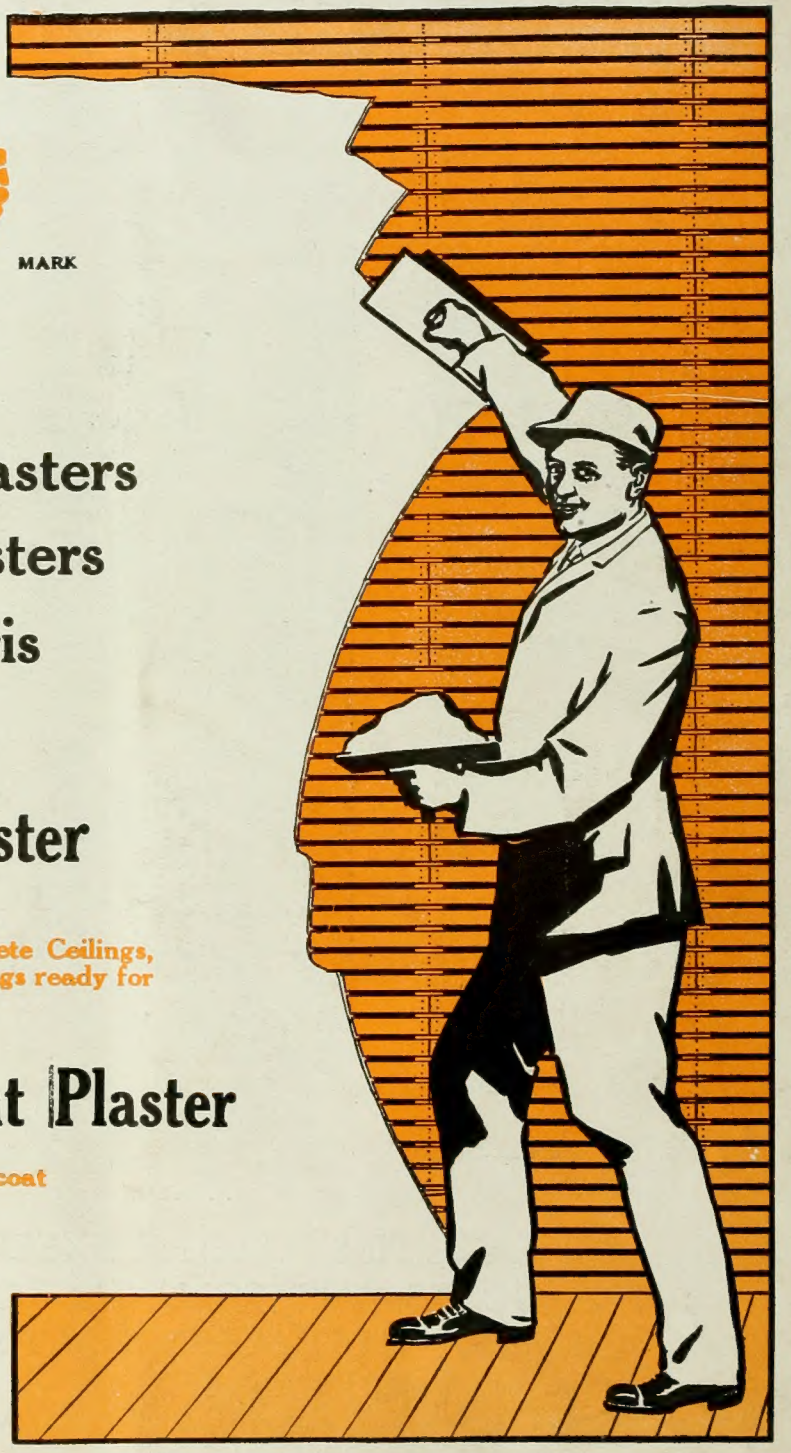

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